

AMERICAN VETERINARY REVIEW,

MAY, 1892.

EDITORIAL.

REPORTS OF AGRICULTURAL BODIES AND EXPERIMENT STATIONS.—The time has arrived, and indeed is nearly past, for the rendition and publication of the annual reports of the various commissions and other official bodies appointed by the different States for the investigation of agricultural and kindred subjects, and we ought soon to be able, therefore, to estimate fairly the condition of health and soundness of the domestic animals which form so large a portion of the wealth of the country.

Considering the sources of these reports, and the facilities of the various Agricultural Boards, the officers of Experimenting Stations, and State Superintendents and other official bodies and persons, for securing accurate and reliable information, and availing themselves of the best accessible aids, the stock-breeders, the veterinarians, the agriculturists, and all who are in any manner interested in the use or consumption of live stock—and this excludes, if any, only an exceedingly small fraction of the community—will be themselves in fault if they fail to become fully informed upon all the essential points of the science, the history, the economy, the management, and the magnitude of the great interests involved in the live stock business, and its bearing upon the welfare of the country, and, in a special sense, upon the health of the people.

All these reports, and with them the monthly bulletins

which are issued by some of the Boards of Health, are doubtless read, if not studied, by veterinarians generally, and especially by those among us who are in the habit of giving the subject of sanitary medicine a prominent place in our studies and observations; and certainly the State Veterinarians and the officers of the Bureau of Animal Industry should be counted among this number.

Among the reports which we have recently received are two which have specially attracted our attention. One of these is from Connecticut, and the other from Maine. The Connecticut report gives us the assurance that the past season has been one of general healthfulness, and that no disease commonly accounted contagious has to any considerable extent prevailed within her borders.

The report from Maine, although it closes by affirming that "upon the whole the condition of freedom from disease has been most gratifying," devotes the greater part of its space to the consideration of tuberculosis, and the justification of the quarantine measures which have been established against the importation of cattle from Massachusetts.

A careful perusal of this report leaves a very favorable impression of the course of the Commissioners, and indicates the performance of a great deal of careful work and a full appreciation of the importance of the duty devolving upon them, and of the necessity of establishing their position by the citation of facts such as would clearly sanction and substantiate their action.

The figures presented by the Commission in proof of the invasion of their State by tuberculous subjects from Massachusetts are of great force and value, though probably not very pleasant reading for Massachusetts people. But while the truth is sometimes unpleasant to hear, there are frequently conditions in which there is much to lose and nothing to gain by its postponement or suppression, and the truest rule as to its disclosure is "the sooner the better." And such is now the case in respect to the authorities of Massachusetts.

That the people of that State are becoming awake to the seriousness of the accusations made by the Maine

Commissioners is made fully evident by the following remarks which were contained in the editorial columns of the *Boston Herald of April 9th* :

THE CATTLE COMMISSION.

The indictment which the Cattle Commission of this State has had brought against it by the Cattle Commissioners of the State of Maine is one which must lead to positive action if a public scandal is to be avoided. If the statements of the Cattle Commissioners of Maine are to be trusted, the members of the Cattle Commission of the State of Massachusetts are thoroughly incompetent and untrustworthy officials. They are allowing contagious pulmonary diseases to extend among the cattle of this State, which not only threaten the health of these animals, but endanger the lives of our people, particularly sick and aged persons and young children—that is, those who are in any way dependent for existence upon a milk diet.

The charges that are made by these presumably responsible persons in Maine are either true or false ; if the former, then the members of the Cattle Commission of this State should be immediately removed ; if the latter, then the members of the Commission owe it to themselves to have the fact clearly demonstrated by competent executive or legislative inquiry. No half-way course is possible.

We may add, that the charges now made have been previously brought forward, though in a less responsible manner ; but, for one reason or another, they have not been examined or answered. If, as most physicians assert, tubercular affections can be transmitted from a diseased animal to a young child by drinking the milk of the former, then it would seem, in view of the great loss of life that occurs in children of three years of age and under, that no preventive measure could be too severe which had for its result the placing of a check upon this needless mortality. We have our milk inspectors, whose duty it is to see that milk sold by milkmen and purchased by the consumers does not have its nutritive qualities reduced by the adulteration of water ; but, if these official statements which come to us from Maine are correct, the water that may be put into milk may be the healthiest part of it.

It seems to us that a *prima facie* case has been made out, which not only justifies, but absolutely imposes upon the State authorities the duty of making an investigation. If the work of the Cattle Commission could be undertaken either by the Board of Health or as a department of the service of the State Board of Agriculture—perhaps, in this case, the former, on account of its special medical character—there is every reason for thinking that the alleged incompetence would give place to scientific thoroughness, and if there are, as is asserted, many hundreds of diseased cattle kept within a few miles of this city, their presence would be found out, and their prompt destruction would prevent the spread of the disease through other cattle and the possible extension of it to human beings.

While we congratulate the Maine Commissioners on Contagious Diseases of Animals as a board, however, we feel that

our personal compliments are specially due to our friend Dr. Bailey, who, we believe, has on the present occasion once more shown how fully he has realized the serious nature of the charges he has alleged against the Massachusetts officials; and we are assured that he has neglected none of the proofs necessary to sustain the position he has assumed.

VETERINARY GRADUATES.—The following figures represent the record of the graduation of students at the last commencement exercises of our American veterinary schools: The American Veterinary College contributed 47; the New York College of Veterinary Surgeons 29; the Chicago Veterinary College 70; the Ohio Veterinary College 16; and to these may be added 74 from the Toronto Veterinary College, and some 16 from the Veterinary Department of McGill University, with others still from schools whose college years have not yet expired. There are again, the veterinary departments of various agricultural colleges, and still others of other schools, from which we have received no intelligence. Altogether we make out, hypothetically, 252 new veterinarians as the result of the work of the year, and this number is about *one-eighth* of the entire array of regular veterinarians to be found in this entire country within a comparatively recent period.

A careful consideration of these figures, and a comparison of the success which has attended the establishment of veterinary schools, might furnish a strong argument in favor of the views of those who do not consider the present time as a proper one for a change in their curriculum in some of our schools; but, on our part, we think that no better argument could be devised in favor of the establishment of an American National Board of Examiners, with authority to confer the diploma of "*The Veterinary College of America*," which should be the only recognized certificate of competency to practice in the United States. Having been the first to call the attention of our national organization to the creation of such a Board, and freely devoted our editorial columns to the advocacy of the proposition and enforcement of our reasons for urging the matter upon our brethren, we feel justified, in the pres-

GEN
A
ques
from
*
July 2

ence of the statistics to which we have referred in now suggesting, and with emphasis, that it is a proper time for us to refresh the memories of the officers of the United States Veterinary Medical Association, and to urge upon them that active steps may be taken for the discussion of the subject at the next meeting in Boston.

NOTICE.—Among the reasons by which we have been influenced in our decision to transfer the business management of the REVIEW from our own hands to those of Messrs. Sabiston & Murray, was, among others, that all complaints should be always directed to the same parties. Yet business letters are still sometimes directed to us personally, and although we refer them to our publishers, they sometimes remain unanswered or neglected. Whose is the fault, we do not know. But as of late, and especially at the present time, when some of our subscribers are changing their addresses, some of them leaving college, and some returning home, and for other reasons, errors may take place in the publishing office, and we would once again ask our friends to direct all their communications relating to new subscriptions, or to renewals, or the payment of dues, or to the loss of numbers of the REVIEW, etc., to Sabiston & Murray, 916 Sixth Avenue, New York City, but continue to mail to our own office, 141 West 54th St., all papers and communications designed for publication.

ORIGINAL ARTICLES.

TUBERCULOSIS OF ANIMALS IN ITS RELATION TO HUMAN ALIMENTARY HYGIENE.

BY M. S. ARLOING.*

GENTLEMEN :

At the Congress of 1888 you were invited to consider the question of the prevention of the transmission of tuberculosis from animals to mankind, and the committee of the present

* A lecture delivered before the Congress for the Study of Tuberculosis, July 27, 1891. Translated from the *Journal of Zootechnie*.

Congress having again introduced as a subject of discussion *the prophylaxy of human and animal tuberculosis*, there will be an obvious propriety in making the *utilization of the flesh of tuberculous animals* the theme of our remarks on the present occasion; for notwithstanding all that has been hitherto said touching the alimentary use of such meats in ordinary conditions, the fact continues to constitute a permanent source of danger, which may only too soon become realized in the tuberculization of numerous human victims.

It may be thought that we are resuming the subject unnecessarily and prematurely, but the result which followed the discussion of the resolutions of the former Congress, before the various bodies to which they were committed, seems almost to impose upon us an obligation to re-enter *de novo* upon a review of certain points of which we then had the honor to ask your acceptance. We do not, however, deny that within a few years a certain amount of progress has been realized. The influence of the various veterinary congresses, and especially of the national gathering of 1886, resulted in the classification of bovine tuberculosis amongst diseases of animals legally designated as contagious, and his Excellency, the Minister of Agriculture, has indicated the cases in which the flesh of animals recognized as tuberculous at the slaughter houses is to be excluded from public use. Through the influence of these deliberative convocations and the recognized authority of the members of the congress, and specially as the effect of the adhesion of physicians, and more than all as the fruit of the agitation maintained by veterinarians, the idea of the noxious quality of the flesh of tuberculous cattle has now largely penetrated the public mind, and the force of the enlightened opinion which has thus become prevalent has also tended to modify the views and moderate the claims of those who decline fully to adopt our conclusions.

But our task is not yet finished, nor can we be warranted in so considering it so long as the practical difficulties which arise from our antagonistic attitude towards tuberculosis remain to be overcome, and the unanimity of opinion which should exist on a point involving so largely both scientific in

terest and economic utility, remains unattained. If this desirable unanimity could be established among us, we should probably not have long to wait for such an agreement between the hygienists, with the meat-producing interest and our official agencies, as would end in the adoption of such measures, harmoniously and amicably adjusted, as would effectively reconcile and permanently establish the interests respectively involved, and terminate for good the conflict between the claims of human health for protection and of the agricultural community for assurance of indemnity in cases of equitable need.

It is in this spirit that we desire to speak to this congress, and we shall not consider that our mission has been accomplished until the day when the necessary legal regulations can be carried into effect without detriment to any interest, or remonstrance from any quarter.

We cannot refrain from some expression of our astonishment upon hearing from scientific men avowals of their doubts in respect to the dangers which accompany the use of tuberculous flesh for food. There is but little agreement in their alleged reasons for these doubts, but they may be summarized in such cavilings as these:

1st. That the identity of the nature of human and bovine tuberculosis has not been demonstrated.

2d. That there is doubt touching the virulency of the parts used for inoculation, or at least it is very slight when the connective tissue is used, and almost absent when in the digestive canal.

3d. That ordinary cooking is sufficient to obviate any supposed dangers accompanying the use of the tuberculous flesh.

4th. That even conceding that some danger may survive the process of cooking, the deprivation of the amount of food destroyed, especially when the poorer classes are considered, will be perhaps more injurious to the human race than its free consumption as aliment, with whatever risks may be encountered by thus disposing of it.

5th. That it is consequently useless to impose such a serious loss upon agriculture, and interpose such an embarrass-

ment and loss upon trade by proceeding with such absolute severity against the meat of tuberculous animals.

A. To the first objection we answer that Mr. Chauveau has tuberculized steers by causing them to exhibit all the lesions of human pulmonary phthisis under all its forms, from the granules to the caseous pneumonia, and that it has been impossible for him to distinguish the results from those which he had obtained by the ingestion of bovine tuberculosis. The reciprocal experiment has also been clearly demonstrated by repeated observations, and amongst the most recent I may recall that of E. M. Tscherning, of Copenhagen, published in 1888, and that of Mr. Nocard in 1889, reported to the Academy of Medicine after Pfeiffer.

Mr. Tscherning reports having treated a young veterinarian who received a wound on one of his fingers from a scalpel used in making the post-mortem of a tuberculous cow. Three weeks later, though the wound was healed, the surrounding parts became swollen, and the tumefaction afterwards ulcerated and suppurated. Notwithstanding proper treatment, the local condition became aggravated, surgical interference was required, and a subcutaneous tuberculous mass was removed in which the microscope revealed well-formed tubercles and the characteristic bacilli. The inoculation had no further bad results, and we congratulated ourselves and our colleague on the good result, as well as for the scientific bearing of the fact, the local tuberculization following an accidental inoculation, and thus leaving no doubt as to the origin of the infection. It was evidently a successful implantation of bovine tuberculosis upon man.

Mr. Nocard has reported the case of a veterinarian of Weimar, named Moses, of good health and without hereditary predisposition, who wounded himself in 1887 while making a post-mortem examination of a tuberculous cow. The wound ulcerated and then healed, but an internal tuberculosis was soon manifested and resulted fatally to the patient in 1888. And again, Mr. Ollivier and Mr. Boutet have reported the striking fact of the appearance of six cases of tuberculosis in a school where a tuberculous milch cow was kept.

B. We are told that the virulency of the parts of a tuberculous animal selected for alimentary uses is either quite wanting or very slight in degree when called to act in the connective tissue, and that it may be entirely ignored when its action is to take place in the intestines. This optimistic conclusion rests upon quite too compliant an interpretation of the experimental facts. The quickest and surest way of demonstrating the presence of the tuberculous virus in a suspected fluid or tissue is to employ it in the inoculation of the peritoneum of animals possessing a high degree of susceptibility to the tuberculosis infection. The virulency of the blood and of the muscular juice has been demonstrated by this process in a great number of cases. But inasmuch as success has not been absolutely invariable, certain "reasoners," taking advantage of the negative results, have claimed that tuberculous virus does not exist in microscopic lesions. And again, they willfully exaggerate the proportion of the negative results, and tacitly concede only an insignificant value to the demonstrated facts.

We have with the most scrupulous care and impartiality collected reports of forty-seven experiments designed to ascertain the comparative degrees of virulency possessed by tuberculous animals free from muscular lesions. In all, one hundred and thirty-seven guinea pigs were used in these experiments. Out of these forty-seven recorded cases, nine have given us thirteen positive results. Consequently, from the comparatively small statistical showing the flesh of tuberculous animals has proved itself infecting in one-fifth of the cases, and has tuberculized the inoculated subjects in the proportion of 9.4 per cent. We desire to remark emphatically that these figures are the *minima*. Indeed, it must not be forgotten that the virulent bacilli are irregularly dispersed through the muscular masses; that only a very small fraction of them are used in the inoculation; and again, that only the juice of the muscle is injected; and moreover, that a number of microbes much greater than those extracted in the juice, must remain in the pulp of the tissue submitted to dilaceration, or to the squeezing process.

In a greater quantity of the muscular juice, or of that obtained from various regions of the organism, it is certain that more positive results might be obtained.

We had intended to make this demonstration on a larger scale, and more than one hundred guinea pigs had been obtained for the purpose, but unfortunately a contagious disease baffled our intentions in a few days. The experiment, however, which we contemplated was successfully undertaken by Mr. Galtier, though less extensively, and he found that the same juice, which had tuberculized in a dose of four cubic centimetres, imparted the disease when injected in a dose of twelve. And again, he produced tuberculosis with the juice of the muscles of the shoulder; when under the same conditions that of the muscles of the thigh failed to take effect.

The irregular and unequal mode of distribution of the virus in the muscles is again well established by the experiments of Mr. Stubbe, who recently filled the position of Inspector of the abattoir of Louvain, who, while some experimenters failed in several attempts, each time upon different animals, succeeded twice with only a single animal in proving the noxious character of the flesh; in a third trial, however, obtaining a negative result, though experimenting with two animals.

We therefore believe it to be an error to attribute a high value to negative facts, especially when the number of experiments has been restricted by an inadequate supply of test animals.

We desire also to add that the virulence of the muscular juice does not give an exact idea of that of the flesh sold in the shops. Indeed, the latter contains lymphatic glands, which may conceal some tuberculous lesions, or bacilli, notwithstanding their appearance of perfect integrity. The recent works of Mr. Physalix have shown that in diseases where the microbes exist in the fluid media, the lymphatic glands easily contain germs with corresponding pathogenic proportions. But, as I desire as much as possible to adhere to the subject of tuberculosis proper, I will on this occasion mention a very interesting experiment of Mr. Loeret, the doyen of the Faculty of Medicine of Lyons.

The
lous ste
remarka
excited
of the o
became
Mr. Loer
the case
the mus
unassiste
into pu
with it.
the poss
health a
which w
cided vi
no outw
this occ
of subje
taken ad

Basin
claimed
than tha
yet enco
compel

We v
erally co
losis thro

A mo
has been
Congres
not pro
through

We a
by a mer
ample:
ive cana
tubercul

The official inspectors of that city had seized a tuberculous steer, which had nevertheless attained a condition of remarkable fatness. This act of the municipal functionaries excited such violent opposition and remonstrance on the part of the owner that the interference of the Mayor of the city became necessary, and a commission was appointed, of which Mr. Loeret became a member, to examine and report upon the case. The result was that a lymphatic gland, taken from the muscular masses of one of the hind legs, and which to the unassisted sight appeared to be non-tuberculous, and crushed into pulp, infected a guinea-pig which was inoculated with it. This fact has a double significance, in proving the possibility of the existence of a general appearance of health and soundness, as indicated by the "splendid fatness" which was present, simultaneously with the fact of the decided virulence of the lymphatic glands, although exhibiting no outward or visible characteristics of a morbid kind; and this occurred in but a single one belonging to the category of subjects of which some of the partisans of tolerance have taken advantage to vindicate and reinforce their position.

Basing our reasons upon other facts, we have already claimed that the flesh of fat is equally noxious, if not more so, than that of the lean tuberculous animals; and we have not yet encountered any new arguments sufficiently potent to compel us to change our minds on this question.

We will not insist further on these points, since it is generally conceded that at times the flesh may produce tuberculosis through the connective tissue or the peritoneum.

A more serious objection remains to be considered. It has been argued that the measures recommended by the last Congress were excessively rigorous, for the reason that it was not proved that meat of tuberculous origin could infect through the digestive canal.

We are charged with undertaking to settle this contention by a mere course of ratiocination, and arguing thus, for example: Tuberculous matter is infecting through the digestive canal, and therefore the juice of meat which sometimes tuberculizes through the connective tissue may cause tuber-

culosis by injection. No doubt this reasoning produces upon our mind a dirrimant effect. And if everything is to be determined by syllogisms in this matter, we can but think that it would be more logical to agree to our conclusions therein to say: "The juice of meat sometimes contains tuberculous virus, the virus infecting through the digestive canal; then the meat can be taken without danger." But we do not need a process like this to prove our facts.

Experiments upon the effects of the injection of the raw meat, just as it is sold in the shops, and even with the bones removed, have furnished a very respectable number of positive facts, and from these facts we *know* that the injection of raw meat has tubercularized animals in the proportion of 11.8 per cent., or, in other words, more than the inoculation in the connective tissue.

Mr. Nocard affirms, in an excellent article recently printed, that there does not exist a good experiment showing that the injection of raw meat is capable of giving tuberculosis, "because," says he, "the authors have not been careful to avoid the soiling of the ingested meats through other virulent liquids, such as pus, or the mucosities of the respiratory tracts or other regions, and of removing the glands, which are so often crowded with tubercles."

It is easy to ignore the force of unfavorable experiments, by taxing them with error. But we see no reason to doubt the integrity and thoroughness of the investigators who are seeking to find a difference between the infecting qualities of tuberculous lesions proper and of suspected meats, and who, we must believe, have taken all necessary precautions for the removal of all such evidently virulent elements as would, if allowed to be present, disturb or prevent the results sought for and anticipated.

Let us add, that if the success of the examination is to be jeopardized by the soiling referred to, the operator has only to visit some well conducted abattoir and watch the dressing of some of the animals disposed of at these establishments, to satisfy himself and acknowledge that the meat of tuberculous origin which is sold to us is really very dangerous.

T
prove
nature
by the
ventur
as alto
presen
Th
infecti
would
cases
gestio
flesh
shorte

DIF

(A p

As
arian
I trust
tion m
It
author
labor.
hands
chloro
lows:
liabili
no sma
the in
dition
malpr
is firm
There
anima

To resume: To describe the experiments instituted to prove the infectious character of meats as of the same nature with those in which tuberculosis has been produced by the injection of tuberculous products, is, in my opinion, to venture a hazardous assertion, and we can but look upon it as altogether the wiser course to consider the facts as they present themselves.

The meat of tuberculous animals may cause tuberculous infections through the digestive canal; but let us say that we would like to believe that the infection is less frequent in the cases of natural than in those of experimentally-induced ingestion, for the reason that in the latter case the suspected flesh is usually administered in greater quantities and at shorter intervals than in the former.

(To be continued.)

DIFFICULT PARTURITION AND THE AFTER-TREATMENT.

By DR. G. A. JOHNSON, V.S., Odebolt, Iowa.

(A paper read before the Western Iowa Veterinary Medical Association).

As it is nearing that season of the year when the veterinarian is liable to be called upon to assist in difficult deliveries, I trust that a few remarks on the subject of difficult parturition may be in order.

It seems somewhat strange to me that none of our leading authorities have advocated the use of anæsthetics in difficult labor. As they have always been of much service in my hands, I here state that I am very much in favor of the use of chloroform, and my reasons for its use are somewhat as follows: 1st, that it renders the animal quiet, thus lessening the liabilities of the operator being injured, which is a matter of no small importance; 2nd, that when the animal is fully under the influence of the anæsthetic, the uterus is in a relaxed condition, thus giving the operator an opportunity to right the malpresentation with much more ease than when the uterus is firmly contracted, and labor pains more or less constant. There are some objections to using anæsthetics, as having the animal incumbent and constantly in the same position.

The indications for the use of anæsthetics may be summed up as follows: When the animal is vicious, when the malpresentation is of such a character as to render delivery very difficult and prolonged. These conditions of course can only be ascertained on examination, consequently the first step should always be to make an examination; then if it is advisable to use an anæsthetic, place a casting harness on the animal, then allow her to lie down; when down then draw up the ropes and securely fasten them; then administer the chloroform (the anæsthetic I prefer) until profound relaxation is effected; loosen the ropes so that the animal may be put in nearly as natural a position as possible, then begin the work of correcting the malpresentation.

In the majority of cases it will be necessary to keep the animal in a profound state of anæsthesia but a short time, for by removing the chloroform when the most difficult part of the malpresentation has been corrected, the animal will be so far recovered from the effects of the chloroform, that when the foetus is in a correct position the natural pains will have returned to assist in the expulsion.

I have used chloroform in a number of cases without experiencing any bad results following its use.

There are many other points that will come up in connection with this portion of the subject, as to the different presentations, etc., yet I trust that they can be more advantageously brought out by discussion than in a paper, so I will next give you a few thoughts relative to the after-treatment of difficult parturition and retained placenta.

It was my misfortune to lose most of first cases of difficult parturition, either by septicæmia, metritis, or metroperitonitis; this loss stimulated me to try some new line of treatment, taking into consideration the pathology of the affection therapeutically, and the fact that in all the cases of metritis that I have met with, the uterus was in a relaxed condition. I began the use of ergot in the after-treatment, and now I usually give one or more doses of ergot after delivery has been accomplished, or after removing a retained placenta. My reasons for using this drug are as follows: In a case of difficult deliv-

ery the parts are always more or less lacerated and bruised ; this condition tends to inflammation of the parts, which if unchecked is very likely to result in one of the forms of metritis. Now if ergot be given it lessens the blood supply to these parts, by restricting the caliber of the blood vessels, thus relieving the congestion. Again, when labor has been prolonged, the walls of the uterus becomes fatigued and weak, and consequently it does not contract upon itself properly, but when aided by one or more doses of ergot, as the case may require, the walls contract, the blood supply is to a degree cut off, and the patient is past danger.

In the case of retained placenta, or when the foetus has been retained until decomposition has taken place and the uterus contains more or less purulent material, I proceed as follows : After removing the membranes, etc., I use my hand as a sort of spoon or scoop and remove all fluids, debris, etc.; then I gave a dose of ergotine (one to two grs.), and usually one gr. nitro-glycerine hypodermically.

Notwithstanding the fact that most of our best authorities recommend washing out the uterus with an antiseptic solution, it has invariably proven harmful in my hands. Whether I used too strong or too weak a solution I am unable to say, but as to the results I am certain.

In using ergot two points are gained : first the contraction of the uterus, thus expelling its contents and the lessening of its blood supply, thus lessening the danger of infection by absorption ; secondly, its effect to check inflammation of the parts.

There is one point to which I wish to call your attention, and that is, not to push the ergot too far, or it will cause the uterus to contract with such force as to cause the animal pain, which will be manifest by symptoms very similar to those of ordinary colic. This pain may be relieved with morphia, when it is necessary to push the ergot or in cases where these pains are manifest after an ordinary dose has been given, which is from one-half to one fluid ounce of the fluid extract repeated at intervals of from three to six hours, according to the case ; again, ergot has a slight constipating effect and it

may advantageously be given in connection with raw linseed oil.

In regard to the combination of ergot and nitro-glycerine, while they are to a certain extent antagonistic in their actions, experience has demonstrated to me that while the ergot principally affects the tissues of the uterus and vagina, that nitro-glycerine has but a very slight effect on the blood vessels of irritated or injured tissues, and by its action on the blood vessels of the other portions of the body it affords quite a relief to the congested parts, consequently the combination proves very beneficial and constipation is not so likely to follow its use as when ergot is used alone.

In conclusion I wish to emphasize this point, that I do not give the ergot until I have removed all substances from the uterus, then to counteract the inflammatory process, and to prevent absorption, and that each must be further treated according to its indications.

PARTURIENT APOPLEXY.

BY CHAS. W. HEITZMANN, D.V.S., Jackson, Miss.

Few diseases affecting animals have received a greater amount of attention or given rise to more divergent theories, treatment, etc., than the above mentioned. Therefore it will not be inconsistent for us to advance a different theory and treatment. The unanimous opinion with regard to this disease is, that it is peculiar to the parturient condition, and that a state of coma is more present from whatever cause. This cause we will endeavor to show. It has been argued that plethora, age, temperature, infection, constipation, overfeeding, etc., are prime causes of this disease, and treatment to accompany each feature has from time to time been suggested and practiced with more or less success. It has also been advanced that the disease is purely nervous in its nature. This theory we hold as correct and *we* ascribe the cause to suppression of the lochia. It will not be necessary to enter into a discussion as to the necessity of this discharge following parturition, but suffice it to say that the uterus is thus

relieved from its physiological hypertrophied condition and of the excitement of which it is the seat during pregnancy and parturition. Now as to the treatment. Restore the lochial discharge, which is best done by introducing the hand into the uterus and causing an irritation; it is better if this irritation amounts to a slight hemorrhage. It can also be accomplished by introducing one of the poles of an electric battery. Then begin the administration of your stimulants in whatever shape you may desire, as the case may indicate. We have given this mode of procedure a thorough trial during the past year, and it has proved a success in every instance.

DEHORNING EXPERIMENT.

BY CLINTON D. SMITH AND T. L. HAECKER.*

Last summer it was decided by the Regents to place upon the station farm a herd of good dairy cows, selected from natives, thoroughbreds and their grades. In carrying out this purpose, some twenty-five cows were purchased during the month of October and shipped to the station. When they were let into the yard, it was noticed that the larger cows drove the smaller from feed and water, and often prevented their drinking unless protected by the attendant. It was apparent that unless some means could be devised to prevent this, serious losses would occur, from irregular feeding and drinking, and by premature births.

It was decided that the quickest and most effectual remedy was dehorning. This is, by many, considered a questionable practice, because of the pain inflicted during the operation. In order that the immediate effects might be studied, a comparison was made of the daily yield of milk and per cent. of fat before and after dehorning. These results were compared with the record of a number of cows not dehorned, but which saw the operation and smelled the blood.

The cows Franc, Roxy, Sully, Gran, Clara and Crossy

* From Bulletin No. 19, Experimental Station of University of Minnesota.

were over five years old, and Patsey, Rossie and Bettie over four years; these were dehorned on the 9th of November, 1891. They were fastened in a stanchion, the head drawn forward by means of a halter and small tackle-blocks until the neck was extended to its full length, so that the horns were sufficiently far from the stanchion to permit the free use of the narrow-bladed butcher's saw which we used.

The time occupied was about five seconds per horn; as soon as the horns were removed, pieces of cotton cloth smeared with pine tar were placed upon the wounds. Care was taken to saw the horns inside of the outer edge of the skin, removing with the horn a narrow strip of hair. During the operation the cows gave every indication of intense suffering; but upon being released no sign of pain was visible. The wounds healed rapidly, without any other application than the tar.

Table I is taken from the regular herd record, showing the pounds of milk given by each cow for the three milkings before they were dehorned, the per cent. fat and total fat.

TABLE I.

	FIRST MILKING.			SECOND MILKING.			THIRD MILKING.		
	Lbs. Milk.	Per cent. Fat.	Total Fat.	Lbs. Milk.	Per cent. Fat.	Total Fat.	Lbs. Milk.	Per cent. Fat.	Total Fat.
Betty.....	11.5	4.3	.494	11.	3.8	.418	11.5	4.1	.471
Clara.....	9.5	4.6	.437	9.	3.7	.333	7.1	4.	.284
Crossy.....	6.5	4.7	.305	6.5	4.9	.318	6.5	4.4	.286
Franc.....	13.5	3.9	.526	13.5	4.	.540	15.	3.6	.540
Gran.....	10.	3.8	.380	9.25	3.4	.314	9.5	4.3	.408
Patsey.....	10.5	3.5	.387	11.	3.6	.396	11.15	4.	.450
Rossie.....	10.9	4.2	.457	10.	3.3	.330	10.9	3.7	.403
Roxy.....	13.9	4.1	.569	12.75	3.5	.446	13.5	3.9	.526
Sully.....	21.	4.5	.945	20.	4.3	.860	20.75	4.	.830
	107.3		4.5	103.		3.955	106.		4.298

Total milk yield for three milkings, 316.3.

Total pounds of fat for three milkings, 12.753.

Table II shows the pounds of milk given by each cow during the three milkings immediately following dehorning, with per cent. of fat and total fat.

TABLE II.

	FIRST MILKING.			SECOND MILKING.			THIRD MILKING.		
	Lbs. Milk.	Per cent. Fat.	Lbs. Fat.	Lbs. Milk.	Per cent. Fat.	Lbs. Fat.	Lbs. Milk.	Per cent. Fat.	Lbs. Fat.
Betty.....	10.6	2.9	.307	11.5	4.3	.495	9.25	4.6	.426
Clara.....	12.25	7.	.857	9.	5.5	.495	9.25	4.7	.435
Crossy.....	5.5	5.5	.302	6.	6.1	.366	6.5	5.9	.383
Franc.....	12.75	3.4	.433	13.	3.9	.507	13.5	4.3	.586
Gran.....	9.5	2.7	.256	7.5	3.8	.285	8.5	4.7	.400
Patsey.....	10.	4.	.400	10.5	3.1	.325	10.5	3.8	.399
Rossie.....	9.	3.2	.288	9.75	3.8	.370	9.25	3.7	.342
Roxie.....	11.	4.6	.506	11.	4.8	.528	11.75	4.3	.505
Sully.....	19.	3.1	.589	19.75	4.	.790	20.	3.6	.720
	97.6		3.938	98.		4.161	98.5		4.190

Total pounds of milk for the three milkings, 294.1.

Total pounds of fat for the three milkings, 12.289.

Table III shows the pounds of milk given by the six cows not dehorned, covering the same period as Table I, with per cent. fat and total fat.

TABLE III.

	FIRST MILKING.			SECOND MILKING.			THIRD MILKING.		
	Lbs. Milk.	Per cent. Fat.	Lbs. Fat.	Lbs. Milk.	Per cent. Fat.	Lbs. Fat.	Lbs. Milk.	Per cent. Fat.	Lbs. Fat.
Gertie.....	7.7	5.	.385	7.75	4.7	.364	8.	4.8	.384
Houston....	15.5	5.1	.790	12.75	4.8	.612	13.25	4.9	.659
Maria.....	13.	4.7	.611	13.5	4.7	.644	12.5	4.6	.575
Pottle.....	12.75	5.	.637	12.25	4.	.490	12.1	4.5	.545
Pride.....	6.4	6.9	.441	5.5	5.6	.308	5.75	5.3	.305
Tricksey...	13.25	5.1	.676	12.15	4.9	.600	12.25	5.5	.674
	68.6		3.540	64.		3.008	63.85		3.132

Total pounds of milk for the three milkings, 196.45.

Total pounds of fat for the three milkings, 9.68.

Table IV shows the pounds of milk given by the six cows not dehorned, covering the same period as Table II, the per cent. fat and total fat.

TABLE IV.

	FIRST MILKING.			SECOND MILKING.			THIRD MILKING.		
	Lbs. Milk.	Per cent. Fat.	Lbs. Fat.	Lbs. Milk.	Per cent. Fat.	Lbs. Fat.	Lbs. Milk.	Per cent. Fat.	Lbs. Fat.
Gertie.....	7.	3.9	.273	8.25	6.	.495	7.5	4.9	.367
Houston....	11.15	3.5	.402	15.5	5.2	.806	13.	5.3	.689
Maria.....	12.	4.3	.516	13.5	4.8	.648	13.	4.6	.598
Pottle.....	11.5	3.8	.437	12.75	4.3	.548	12.5	4.2	.525
Pride.....	6.	4.8	.288	5.75	5.4	.301	5.5	5.8	.319
Tricksey...	11.5	3.7	.425	12.	4.3	.516	11.5	4.8	.552
	59.5		2.341	67.75		3.314	63.		3.050

Total pounds of milk for the three milkings, 190.25.

Total pounds of fat for the three milkings, 8.605.

In Table V the first period has reference to the time covered by the three milkings immediately prior to dehorning, and the second period to the three milkings after dehorning.

TABLE V.

SUMMARY.

	Nine Cows Dehorned.	Six Cows not Dehorned.
Milk yield first period	316.3	196.45
Milk yield second period	294.1	190.35
Shrinkage of milk during second period	22.2	6.2
Per cent. of shrinkage in milk	7.	3.
Yield of fat in lbs., first period	12.753	9.68
Yield of fat in lbs., second period	12.289	8.60
Shrinkage in lbs., fat464	1.08
Per cent. of shrinkage in fat	3.	11.

By comparing the yield of milk of the cows dehorned with that of the cows not dehorned, it will be observed that the former gave 22.2 lbs. less during the three milkings after being dehorned, the latter losing 6.2 lbs.; the dehorned cows shrinking seven per cent., while the others lost three per cent.

Comparing the total fat products of these two groups of cows for the same periods, we find a much greater discrepancy, the dehorned cows showing a shrinkage of only three per cent., while the six cows not dehorned lost eleven per cent. It would appear from these observations that while the operation of dehorning may cause a slight, temporary variation in the flow of milk and fat content, the normal flow and per cent. of fat is quickly recovered, and that cows only seeing the operation and smelling the blood show a greater shrinkage in fat than do the ones dehorned.

BROKEN WIND.

By ENOS WALTER, Student.

(A paper read before the Chicago Veterinary College Association).

Inasmuch as you have listened to one essay on this subject this session only certain points in the disease will be discussed in this paper. We will begin with a sketch of the pneumogastric nerve.

The pneumogastric nerve arises by its sensitive roots from

a nucleus of grey matter on the floor of the fourth ventricle, and by its motor roots from a spot just behind the sensitive roots, and coming from the respiratory tract. It leaves the skull through the foramen lacerum, passes down the neck in company with the carotid artery, enters the thorax and from there proceeds to the abdomen. Throughout its entire course the pneumogastric preserves intimate relations with the great sympathetic nerve, numerous anastomosing branches passing between them. The pneumogastric gives off branches to the pharynx, larynx, trachea, bronchial tubes, heart, œsophagus, stomach, liver and intestines; though to what extent its filaments are distributed to the liver and intestines is not known.

The functions of the pneumogastric nerve that concern us at present are :

1. It gives exquisite sensibility to the mucous membrane lining the larynx and bronchial tubes, and is also the sensory nerve of the pharynx, trachea, œsophagus and stomach.
2. It excites contractions of the muscular fibres of the bronchial tubes.
3. It provokes movements of the œsophagus and stomach.
4. It is a stimulating nerve to the respiratory center, though its laryngeal branch is inhibitory to that center.
5. It is the inhibitory nerve of the heart.

In order that all the organs concerned in respiration may act in harmony it is necessary that they be provided with a governor. This governor of respiration is called the respiratory center, and is situated in the medulla. "This center may be stimulated directly by the condition of the blood; an increase of carbon di-oxide or a diminution of oxygen in the blood causes an acceleration of respiratory movements, and the reverse of these conditions causes a diminution of the respiratory movements.

"The center may also be stimulated indirectly, by reflex action. The medulla may be excited to action through the pneumogastric nerves, by the presence of carbon di-oxide in the lungs irritating their terminal filaments; also through the fifth nerve by irritation of its terminal branches; also through

the nerves of general sensibility. In either case this center reflects motor impulses to the respiratory muscles through the phrenic, intercostals, inferior laryngeal and other nerves." [Brubaker].

"The respiratory center, while not dependent upon impulses coming through afferent nerves, is especially modified in activity by impulses traveling through the pneumogastric nerves. If one pneumogastric nerve be cut, respiration becomes slower and deeper, while the pauses between the respiratory movements are more prolonged. If both be cut, the same is true to a greater extent, and the amount of oxygen absorbed and carbon di-oxide exhaled remains the same. Irritation of the central ends of the cut pneumogastriacs increases the rapidity of respiration. The vagus may then be considered as a stimulating nerve to the respiratory center, and the laryngeal nerves as inhibitory nerves to that center, which when stimulated arrest respiration, the diaphragm being in a state of relaxation and the thorax contracted.

"Deficient oxygenation of the blood acts as a stimulant to the respiratory center and causes the respiratory movements to become quicker as well as deeper, while expiration becomes especially increased in power. In a greater degree the deprivation of oxygen from the blood appears to cause the extension of the stimulus from the respiratory center to other adjoining motor centers and we find not only are the ordinary muscles of respiration thrown into violent action, but that every muscle in the body connected with respiration is thrown into a state of forced contraction. Such a state is described as dyspnœa.

"Ligating the vertebral and carotid arteries produces dyspnœa by decreasing the supply of oxygenated blood brought to this center. So weak heart may cause it, and so also may temperature above the normal, from the fact that increased temperature leads to increased activity of chemical processes and so to rapid exhaustion of oxygen.

"From deprivation of oxygen the first stage is dyspnœa, characterized by extraordinary efforts of the muscles of respiration, expiration being especially convulsive." [Smith].

Now let us bear in mind these points:

1. The elasticity of healthy lung tissue is equal to a force of 72 pounds per square foot of lung surface, which is sufficient to expel air from the lungs without aid from the expiratory muscles, while the animal is in a state of repose. Also that the movements of the lungs are entirely passive.

2. The respiratory center may be stimulated by lack of oxygen in the blood supplied it, and also through the action of sensory nerves which are irritated by excess of carbon dioxide or lack of oxygen.

3. Disease often begets an irritable condition of parts affected, and this irritable condition of nerves tends to make them magnify impressions—or in other words makes them over-sensitive.

4. The vagus is a stimulating nerve to the respiratory center, and also by its action causes contraction of the bronchial tubes.

I beg leave to present here a few points on asthma in man which I quote from Pepper's "System of Medicine."

"Asthma is a violent form of paroxysmal dyspnoea, not dependent upon structural lesion; characterized by wheezing respiration with great prolongation of the expiration and the absence of all symptoms of the disease in the intervals of the attacks.

"In ordinary respiration the inspiratory movement is twice as long as the expirium. In asthma this is reversed, the expiratory movement being four or five times as long as the inspirium.

"The wheezing sound is usually heard only during expiration.

"Although the dyspnoea is great, there is no increase in the frequency of the respirations so long as the patient remains quiet, but on the contrary they are often less frequent than in health.

"The circumference of the chest is increased during the paroxysm, due to transitory emphysema, which disappears with the attack.

"Although bronchial asthma is essentially a neurosis and

therefore purely functional in its character, it is rare for it to continue for any great length of time without causing some organic affection of the lungs or heart. The most common sequel of asthma is emphysema.

"The cause of this emphysema is seen in the fact that when the inspiratory muscles act they tend, by the negative pressure which they exert on the contents of the thorax, to dilate not only the air-cells but also the tubes leading to them; while the positive pressure exerted by the expiratory muscles tends to close the already partly closed bronchioles at the same time it is trying to force air out through them. Hence air can enter the lungs much more easily than it can escape, and after each respiration a larger quantity of residual air remains in the lungs till the positive pressure exerted by the elasticity of the lung tissue, added to that exerted by the muscles of expiration, is sufficient to expel as much air as the inspiratory muscles can bring in.

"Owing to this same negative pressure, or tendency to produce a vacuum, the capillary blood vessels of the lungs become distended and congested. Frequent and severe attacks in time cause this dilatation to assume a permanency, and chronic congestion is the result. This state of chronic congestion is occasionally attended with serious exudation into the interalveolar tissue, which, by pressing upon the adjacent air-cells causes their obliteration. This œdema with the remains of the compressed air-cells and the viscid mucous stagnation in the finer tubes, forms the little islets of carnified tissue known as lobar pneumonia.

"Hypertrophy of the muscular walls of the bronchial tubes is also seen in old cases of asthma; this thickening of their walls causes diminished calibre.

"Among human beings there are two asthmatic males to one asthmatic female. There is no case recorded of the death of a human being from uncomplicated asthma.

"Causes of asthma in people:

"Enlarged bronchial glands pressing upon the pneumogastric nerves may cause it. In the great majority of cases, however, the exciting cause does not act directly on the pneu-

mogastric nerves, but upon the skin or some other remote organs, whence it is reflected back through the nerves of respiration to the bronchii. Dust acting as an irritant to the mucous membrane of the respiratory tract may cause it.

"In persons predisposed to bronchial asthma the eating of any indigestible substance may of itself be sufficient to cause the attack. Dyspepsia in its various forms and the presence of irritating substances in the alimentary canal are very frequent causes of asthma."

"The intimate relations existing between the lungs and stomach," says Pepper, "and the fact that asthmatics usually suffer at the same time with dyspepsia, make the question of diet an important one."

Let us compare asthma in man, and broken wind in the horse.

We find a close resemblance all through, in cause, symptoms and structural lesions, if we compare cases of equal severity and long standing.

Take the comparative length of time occupied by inspiration and expiration; we find in the broken-winded horse at rest about double the time occupied in expiration as in inspiration. We find emphysema of the lungs. We find periods of comparative ease and periods of marked dyspnoea. We find the accompanying dyspepsia often, and find the disease influenced by the diet. We find that death is rarely caused by it, and that the treatment is very much the same for both. We also find, according to Williams, the thickening of the muscular walls of the bronchial tubes; but whether we will find two broken-winded males to one broken-winded female among horses I am unable to say.

As to the definition of broken-wind the one given by Williams is probably about the best. He says it is "A non-inflammatory disease characterized by difficult and peculiar breathing; the inspiratory movement is performed with ease, the expiratory by two apparent efforts. The difficulty in breathing is constant, but is liable to remissions and severe exacerbations. A peculiar cough called 'the broken-winded cough' is a constant symptom; indigestion and flatulence aggravate the dyspnoea."

While the horse is quiet he will show it very little at times, but at other times, owing to the asthmatic character of the disease, he may heave much even while perfectly quiet. Even if he does not show it while quiet, he will be found incapable of much exertion without exhibiting more or less difficulty in breathing. Thus he is never entirely free from the disease as he would be were it uncomplicated asthma; nor is the disease equally severe at all times, as it would be if emphysema alone were the cause.

The causes of broken-wind in a horse are primarily the causes of the asthma and emphysema. How asthma may cause emphysema has already been explained. Emphysema may also be caused by the occlusion of some of the bronchial tubes as a result of bronchitis, as the cells at the end of the open tubes have to dilate more as the chest expands, to make up for the non-dilatation of the cells at the ends of the occluded tubes. This over-distention of part of the air-cells often causes rupture of their walls, and the condition known as vesicular emphysema is the result.

The causes of asthma have also been touched upon. The most common causes of the disease as it occurs in the horse are, I think, heredity and indigestion.

That the children of asthmatic people have a decided predisposition to the disease is proven by statistics, as is also the fact that asthmatics are in the majority of cases also dyspeptics. I have no statistics to show this to be the case with horses, but I believe it will be found the same with horses as with men. Robertson in his "Equine Practice" says, "It is generally admitted by horsemen that broken-wind is hereditary."

It is believed that indigestion causes asthma from the effect it has in rendering the pneumogastric nerve irritable, or over-sensitive. Prof. Williams says heaves is a symptom of indigestion and classes it with dietetic diseases.

The effect of both asthma and emphysema is to reduce the capacity of the lungs for supplying oxygen to the blood, and rendering it a difficult task for them to supply it in requisite amount except when the animal is quiet and needs but a small quantity. The lack of oxygen in the blood stimulates the

respiratory center, and dyspnœa is the result. The difficulty of expiration is due to lessened elasticity in the emphysematous lung and the partial closure of the bronchii as a result of the asthma and hypertrophy of their walls.

The cough that accompanies broken-wind is but seldom heard in some patients, while in others that heave no worse it is very often heard and is sometimes quite distressing. It is no doubt caused in many instances by an irritable condition of the mucous membrane lining the larynx, trachea and bronchial tubes; very often I think, from a diseased or oversensitive condition of the pneumogastric nerve which gives this mucous membrane its sensibility. In some cases the cough is said to be due to a lack of bronchial secretion, while still in others to excess of secretion.

The emaciation and enlarged abdomen seen in many broken-winded horses are due to dyspepsia. As digestion is imperfectly performed, a greater amount of food is consumed and chronic dilatation of the stomach and intestines is the result. The diseased condition so brought about affects the pneumogastric and sympathetic nerves and it is no doubt a very fruitful source of broken-wind.

PREVENTION.

The first step in preventing broken-wind is to select for breeding individuals of sound wind and descended from parents free from the disease, as the disease may remain latent for one generation and reappear in the next.

The next preventive measure is good care—that is, proper feeding, watering and working. There is no question but a lack of grain and too much hay, especially if the horse be worked hard and the hay be of poor quality, is a fruitful source of dyspepsia and broken-wind. A horse must needs have strong digestive organs to live upon hay or rough fodder alone and do hard work for any length of time.

A horse worked in the field or upon the road from 1 P. M. till 7 P. M., is in no condition to receive all the water he wishes to drink at once; yet nearly all farm horses are so watered in the summer. Many horses so watered drink from twenty to

thirty quarts of water at a time. This of course aids in bringing on dyspepsia and visceral neuralgia.

As to regulating the work to prevent broken-wind no rule can be laid down. I would only suggest that it is impossible for a horse exhausted by work to digest rough food enough to keep him in good condition, without overtaxing the digestive organs, and that long continuance of this will lead to dyspepsia and so to broken-wind very likely.

Another step in the prevention of this disease is to furnish good nursing and tonics to horses recovering from such diseases as influenza and bronchitis; the respiratory system is then weak and needs attention.

Prof. Williams says, "This disease, like many others that result from ignorance, is fast becoming a thing of the past." It seems to me that such is not the case in this country.

Why certain foods so markedly affect this disease has long been the subject of inquiry. It appears that, although no one has been able satisfactorily to explain this question, its study has led to the discovery of valuable facts.

Dr. Somerville of Buffalo, states that prairie hay is more laxative than timothy hay, and that the horse cannot eat half as much of the prairie hay in a given time as of the timothy. He also thinks grass better than hay because it is more laxative, and that corn-fodder is equally as good as prairie grass or hay, as it is laxative and not very bulky. He farther states that straw is better than hay to feed the heavy horse.

While I think Dr. Somerville partly right, I have found that a horse when hungry will eat as many pounds of prairie hay per hour as of timothy.

Prof. Law in his "Veterinary Adviser" says, "Over-feeding on clover hay, chaff and other bulky and innutritious foods is the main cause for heaves; in Arabia, Spain and California, where there is no long winter feeding on hay, and in our territories, where clover is not used, heaves is a disease that is virtually unknown; it has advanced westward just in proportion as clover hay has been introduced as a general food for horses, and it has disappeared in England and New England in proportion as the soil has become clover-sick and other aliment had to be supplied."

Dr. Law also recommends corn-fodder for broken-winded horses, stating that it is laxative food, and says rye-straw is better than hay for such horses.

Now it seems to be the general idea that clover hay is bad food for a heavy horse: 1. Because it is bulky; 2. Because it is dusty; 3. The horse loves it and so will eat much of it. And prairie hay is supposed to be good food for a heavy horse, 1. Because it is not so bulky; 2. It is not dusty; 3. The horse is not so apt to overeat of it; 4. Because it contains more or less rosin weed.

Let us remove the objectionable features of clover hay and see the result.

We will take a heavy horse and feed him dampened clover hay in small quantities, thus doing away with all objections to it as regards bulk, dust and overeating. Now it should be as good as corn-fodder, but we find it is not, although it is much better than before. There is then some other difference. Is it not to be partly accounted for by the difference in chemical composition? Consider these facts: A dog when fed upon meat uses but 75 per cent. of the oxygen he takes up, in the formation of carbon dioxide. The principal part of the remainder goes to oxidize the nitrogenous food and convert it into urea. When fed upon vegetable food he uses 90 to 95 per cent. of the oxygen taken up, in the formation of carbon dioxide.

If more albuminous food be eaten than is necessary the extra amount, if not too great, is digested, oxidized and excreted as urea.

Fatty foods lessen the destruction of albumen in the body, while much water increases it. The combustion of albuminoids is not the source of muscular force.

The ratio of albuminous food to non-nitrogenous food required by a working horse is from 1:5 to 1:8, and a working horse weighing eleven hundred pounds requires daily, according to Smith, about two pounds of digestible nitrogenous food stuffs, and ten pounds of non-nitrogenous food stuffs. Suppose we feed clover hay and oats, equal parts by weight, enough to give the required ten pounds of non-nitrogenous

food-stuffs. It would require twelve pounds of each daily, and this would also give the required two pounds of nitrogenous food stuffs. But in practice it is impossible to feed just enough and no more. Therefore we must feed an excess of food, but in order for our patient to get along with as little oxygen as possible, we wish to avoid any excess of nitrogenous food, and to do this we must give him food deficient in nitrogen. The rough foods fulfilling this requirement are oat-straw, marsh hay, prairie hay and corn-fodder, and the grains most nearly approaching this proportion are corn, barley and oats.

Another point I wish to bring up is this: We all know that starving a broken-winded horse helps very much to reduce the labored breathing. It seems to be the general belief that this result is brought about simply by the mechanical effect of a comparatively empty state of the stomach and intestines giving more room for the lungs and less work for the muscles of respiration. While this idea is correct so far as it goes, it seems that another important point is often overlooked, viz.: An animal fasting and perfectly quiet requires only two-thirds as much oxygen as when quiet and digesting a meal. The same rule holds good in ordinary labor. When the period of fasting is prolonged the difference must be greatly increased, as the amount of oxygen used is directly proportional to the amount of tissue destroyed, and it is found by experiment that a small dog loses eight per cent. of his weight in the first twenty-four hours of fasting, while on the fifth day he loses only three per cent. of his original weight.

SOME REMARKS ON THE TREATMENT OF WOUNDS IN THE DOMESTIC ANIMALS.*

W. B. NILES, D.V.M.

Professor of Surgery, Veterinary Department Iowa Agricultural College, Ames, Iowa.

Although wounds in man and the lower animals are similar, as far as causation and repair are concerned, there must of

* Reprinted from *The Vis Medicatrix*.

necessity be, in many cases, a difference in their practical treatment, on account of not being able to control our patient. The dressings used in human practice (antiseptic gauze, bandages, etc.) cannot always be kept in place, and consequently the wound soon becomes infected with pus microbes and other pathogenic bacteria. Suppuration and slow healing follow, with septicæmia, pyæmia, erysipelas and tetanus as possible sequelæ. All veterinary practitioners know how utterly impossible it is to keep a majority of the wounds met with in every-day practice, and which must be treated under all kinds of adverse circumstances, aseptic. While it is easier to prevent suppuration than to arrest it, we are often unable, even when the wound has been seen soon after its infliction, to get healing by primary union. Being unable to maintain asepsis and thus prevent suppuration, a majority of wounds must heal by the formation of visible granulations, and the question which presents itself to the practitioner is, how shall such wounds be treated? Disinfecting solutions should, of course, be included in the treatment of all wounds, but what should be done after disinfecting as thoroughly as possible? Should antiseptic ointments be applied without bandages, as is sometimes done? or should the wound be dressed with some antiseptic and then bandaged? or, again, should some powder be dusted on and no bandage applied?

It is not my purpose in this article to discuss the treatment best adapted to the different classes of wounds met with in veterinary practice, but to refer briefly to a line of treatment adapted to most granulating wounds, which has given good results in my hands, the theory of which has been demonstrated to be correct by some experiments made in our laboratory at the Iowa Agricultural College. These experiments I will describe further on. It is well known that where granulating wounds are exposed to the atmosphere they have a tendency to scab over if suppuration be not too profuse. Taking advantage of this fact, the treatment referred to consists of applying something to the surface of the wound which will prevent germ growth, and at the same time assist nature in forming a protecting scab. (While I am aware that this line of treatment

is not new to many, yet I know by frequent contact with members of the profession that it is not generally practiced.) Of the many preparations used for this purpose I have found none as effective as iodoform and calomel combined. The iodoform acts as an antiseptic, and the calomel, being a dessicant, forms, in conjunction with the wound secretions, a firm scab.

Before applying the powder the wound should be irrigated for several minutes, ten at least, with a disinfecting solution. I believe the mistake of not irrigating wounds long enough is often made. As experiments have shown that the *staphylococcus pyogenes aureus* is not always destroyed by being ten minutes in a 1:1000 solution of corrosive sublimate, how can we expect to destroy it in less time in the recesses of the wound when it is protected by the secretions? After as thoroughly disinfecting the parts as possible, the iodoform and calomel, mixed in equal parts or one part of iodoform to two of calomel, should be dusted over the surface of the wound until no more will adhere. After about one-half hour it should be dusted again and then left until the next day, when, if suppurating but little, all that is necessary is to apply again as the day before. If, however, there is much suppuration and no scab formed, the wound should be again irrigated and then treated as before. All that is generally necessary after the first or second application is to apply the powder once or twice daily until a hard scab forms over the entire surface of the wound. If this treatment is properly carried out the wound soon becomes covered with a hard, dry, protecting covering, under which cicatrization goes on rapidly. Treated in this way it will do much better than if covered with oakum, jute, or absorbent cotton and then bandaged, because in the last instance suppuration will not be entirely arrested, and what pus forms will be kept more or less in contact with the wound, and this, with the rubbing of the bandage against the part, interferes with the granulation and prevents the formation of a normal scab. As a result the wound heals slowly, and in many cases fungus granulations appear.

If the wound be simply washed with an antiseptic solution, as is often done, and no powder applied, suppuration, although

retarded for a little while, soon becomes profuse again, causing the natural scab to be imperfectly formed.

I do not wish to be understood as advocating this line of treatment for all wounds. I only recommend it for those which of necessity must heal by granulation, and which cannot be kept aseptic. Those which can be induced to heal by primary union, or can be dressed antiseptically and kept aseptic, should be treated the same as similar wounds in man. The following cases will serve to illustrate to what kind of wounds the iodoform and calomel can be successfully applied.

Case 1.—Sorrel filley, about 2 years old, received, among other injuries, by running into a barbed-wire fence, an oblique cut three inches in length across the anterior face of the large metacarpal bone, completely severing the tendon of the ant. extensor of the phalanges. As the case was not seen until several days after the accident, no sutures were inserted, but the wound was dressed antiseptically and a roller bandage applied. This treatment did not prove satisfactory. Pus accumulated under the dressing and the granulations becoming unhealthy, I decided to apply the iodoform-calomel powder. Daily applications of this soon caused the wound to become covered with a protecting scab, under which cicatrization progressed rapidly.

Case 2.—Gelding, with a large, lacerated wound just above the inner heel of the posterior limb, involving the coronary band, was brought to the college infirmary for treatment. Disinfection of the entire foot was attempted by placing it in a bucket of corrosive sublimate solution, after which the wound was dressed antiseptically and bandaged. On account of the location of the injury it could not be kept aseptic, although suppurating but little. It was constantly irritated by the bandages and made but little progress toward repair. For this reason all bandages were discontinued and the iodoform and calomel applied. The case began to improve at once (quite a change being noticed in twenty-four hours), and made a good recovery.

Case 3.—A bay mare, 3 years old, running in pasture, became frightened in the night and ran into a fence, inflicting a wound

about six inches in length across the inner side of the fore-arm, just above the lower termination of the superficial pectoral muscle. It was washed with a disinfecting solution, sutured, and bandaged. Being in a difficult place to dress properly, suppuration occurred and only a small portion healed by primary union. After the sutures gave way bandages were discontinued and only the powder applied, as in other cases. The wound healed fast.

A good way to apply the powder is by means of the small insect-powder blower, which can be obtained of any druggist. In the absence of this or any other powder blower, I apply it with a spatula, or small wooden paddle. In some cases this is preferable to the blower, as more can be made to adhere.

The experiments and results obtained therefrom, referred to in the beginning of this article, were as follows: Knowing that iodoform was extensively used as an application to wounds, but still claimed by some to be of little value, we determined to test its effects on the *staphylococcus pyogenes aureus*, one of the most common pus microbes. In order to have the circumstances as similar as possible to those in wounds treated with iodoform, surface inoculations were made on agar-agar and iodoform dusted over the surface. The cultures were then either left to develop in the temperature of the room or placed in a thermostat at a temperature of about 37° Centigrade. No growth was perceptible in any tube treated in this way, even when left in the thermostat for several days, but in every instance the control tube (inoculated tube not dusted with iodoform) showed, after twenty-four hours, a vigorous growth of the aureus.

The same experiment was repeated, with the exception of using bituminized iodoform in place of the simple iodoform, with the same results. No growth whatever took place except in the control tube, where it was vigorous.

The new preparation known as iodol, which is claimed to be equally as effective as iodoform, but minus the disagreeable odor, was also tried, but with very different results. In every instance there was a very vigorous growth, apparently as vigorous as in the control tubes.

In order to determine whether or not calomel could be added to iodoform without destroying the antiseptic effects of the latter, experiments were made with a mixture of equal parts, and one part of iodoform to two of calomel. Both mixtures proved as effective as iodoform alone.

Similar experiments were also made with boracic and salicylic acid and pyoktanin (methyl violet). Each preparation was used alone, and in all cases there was no growth, except in control tubes.

From these experiments we conclude that all the preparations experimented with will prevent germ growth in a wound if kept in contact with all parts of its surface. Iodoform, bituminized iodoform, and iodoform and calomel mixed, not not being soluble in the wound secretions, will remain longer on the surface, and are consequently better preparations to use than the others.

REPORTS OF CASES.

OPERATION FOR RADICAL CURE OF INGUINAL HERNIA IN A STALLION.

By A. W. CLEMENT V.S., Baltimore, Md.

The history of the case.—The hackney stallion Lavallette was bought by the present owner, Mr. S. M. Shoemaker of Baltimore, in New York, May 25th, 1891, from Hon. A. J. Cassett, who bred him. He was foaled in March, 1890. He was shipped to Mr. Shoemaker's farm near Baltimore the third day following the purchase. When he had been at the farm about ten days he had a severe attack of distemper. On examining him one day during his convalescence, I noticed that what appeared to be the right testicle was rather larger than the left and pointed posteriorly.

On manipulation the greater part of the mass was found to be soft, very compressible and felt like a bunch of strings. A much harder substance, in form like a testicle, occupied the anterior upper part of the mass.

The animal was kept up during the day, on account of the

heat, in a small darkened house by himself, and at night allowed to run in a yard adjoining the house. It was soon noticed that the mass was larger in the morning than at night. Sometimes at night the entire mass, including the testicle, would be drawn up into the abdominal cavity.

I was one day able to reduce the soft mass, at the same time holding the gland in place. The hernia was constantly becoming larger; the stallion, though apparently desirous, only once could be persuaded to serve a mare. As he was a very promising colt and of rare good breeding, it seemed a great pity to perform the covered operation of castration. It was finally determined to perform, if possible, Halsted's* operation as practiced for the radical cure of hernia in man.

The horse was led to Baltimore, a distance of twelve miles, on January 20th, and placed in a box stall in a livery stable yard preparatory to the operation. This location was secured as, in my opinion, the most favorable, on account of its good ventilation and isolation.

The arrangements were finally completed for the operation and the animal was put on very light rations for thirty-six hours. Except that sterilized instruments and ligatures were employed, no attempt at antisepticism was made.

The horse was cast and so bedded with straw as to make his rump several inches higher than his shoulders. The hind leg on the affected side was removed from the hobble and, abducted and extended as much as possible, was held in position by means of a rope attached to a hobble around the ankle, passed over a hook and held by a groom. With the animal in this position the hernia could be thoroughly examined and the exact size of the ring determined. The protruding bowel returned to the cavity as soon as the animal was on his back, and the testicle could be distinctly felt.

The operation.—The horse was anæsthetised with ether. One grain of morphia was administered hypodermically before the administration of the anæsthetic.

1. The skin incision, parallel to Poupart's ligament and

*Johns Hopkins Hospital Bulletin, Vol. 1. No. 1., and *ibid*, Vol. 2, Surgical fasciculus No. 1.

about eight inches long, extended from the upper part of the scrotum to a point perhaps two inches external and anterior to the internal abdominal ring.

2. The external ring and aponeurosis of the external oblique muscle being fully exposed, the aponeurosis of the external oblique muscle and the internal oblique and transversalis muscles were divided to a point about one inch external and anterior to the internal abdominal ring.

3. The sac was isolated and incised. The hernia was of the congenital variety. The testicle was atrophied and the globus major of the epididymis occupied the external abdominal ring. It was therefore impossible to perform a thoroughly radical hernia operation without sacrificing the testicle either by amputation or by constriction of its epididymis.

4. The testicle was amputated and the peritoneal cavity closed off by a few quilt sutures applied along a line considerably higher than the so-called neck of the sac. The sac was excised close to this line of sutures.

5. Six quilt sutures, passed very deep, were taken through the pillars of the external ring and through the divided external oblique aponeurosis and the internal oblique and transversalis muscles.

6. The skin wound was closed by buried skin sutures.

The transplantation of the vas deferens, one of the principal features of Halsted's operation, was, under the circumstances not indicated.

He was kept well under morphia and lay very quietly until late in the evening, when, as he became uneasy the hobbles were removed and he was allowed to rise, four men being present to assist him should he have any difficulty in getting up. The floor, which was of clay, was built up by bedding so that he stood with his rump at least six inches higher than his withers, and his head was tied up so that he should not attempt to lie down. The next morning a bar was put across the box three feet from the wall so that he could not move out of position.

The day following the operation the mucous membranes

were intensely congested. The mucous collected so much in the trachea that the rattling breathing could be heard as soon as one entered the box. The pulse was rather weak, and the temperature 102.3° . The animal would not eat and had difficulty in drinking. He had a loose cough, which at the same time caused the abdominal muscles to contract and seemed to indicate general muscular soreness. The wound looked well and showed no evidence of swelling. At midnight the temperature had risen one degree, the breathing was somewhat shorter and weaker, pulse rather intermittent, lungs clear. Stimulants and quinine were prescribed. The stimulants regulated the pulse fairly well, but the temperature remained at 103.3° for the next twenty-four hours. No swelling had appeared up to this time, although more than forty-eight hours had elapsed since the operation.

On the third day following the operation the scrotum began to swell and in a few hours the swelling had continued up the scrotum and over the groin. There was no discharge but the part was hot and tense and pitted on pressure. The temperature was 104° . Pulse of good volume, 65. Respirations quickened. Mucous membranes of nose very red. Trachea contained a considerable amount of mucous. Weak, loose cough.

On the fourth day the temperature rose to 105.4° , and the animal became very weak. The lower subcutaneous suture was removed and the partially united edges of the outer wound opened, which allowed the escape of about half an ounce of bloody pus. This relieved the animal somewhat and the temperature fell in the course of three hours three-fifths of a degree.

On the evening of the fifth day, however, it was swollen more than ever, temperature 106° ; pulse weak. The subcutaneous wound was laid open to the top of the scrotum and fully two ounces of fluid, mostly blood with some pus, escaped. The cavity was washed out with carbolic acid and warm water, 1 to 60. The edges of the ring could be easily felt adhering firmly and the stitches were all in place and tight.

The following morning the temperature was 103° , and much of the swelling had disappeared. Continued irrigation three or four times a day was ordered. The wound did well from this time on. The mucous in the trachea gradually cleared up as the animal gained strength.

At the end of the second week, for some unexplainable reason, the temperature suddenly rose from 102° to 105.3° . The pulse was quick but full. The animal had a short dry cough, refused to eat and became greatly prostrated. In short, he presented all of the symptoms exhibited by people when attacked by the grip. There was no concealed pus, for everything was draining perfectly. This condition lasted for about a week before he appeared to feel like himself. It may be said that the weather had been very changeable during this time and some of the days were very cold. The floor was very damp in spite of all the bedding which could be piled in. A wooden floor was laid finally, which made the place much more comfortable.

At the end of the third week the swelling had nearly all disappeared. Stitch abscesses had formed, the stitches were pulled out and the union of the walls of the ring was perfect as far as could be ascertained by the sense of touch. He was sent out for exercise at the halter for about an hour. He felt well. The next day he was given a little more exercise, and the third day he was given about three hours, as it was intended to send him home by the end of the week.

When I saw him in the afternoon of the third day I noticed a little swelling in the front part of the ankle of the hind leg on the side operated upon. By evening it was swollen considerably and very hot and painful. The next day the hock began to swell without any continuation of the swelling from the ankle up the leg. There was no swelling in the scrotum and drainage seemed to be perfect. His temperature went up to 104° on the second day after the swelling appeared. Rheumatic arthritis was diagnosed and salicylates were prescribed, with the application of acetate of lead and opium to the parts. Hand rubbing was afterward ordered and instructions how to rub were distinctly given.

These instructions were not carried out properly and resulted in inflaming the skin so that it grew worse instead of better.

He finally recovered sufficiently to go about without any lameness or stiffness and he was led to his home, twelve miles from the city, where he arrived as fresh, apparently, as when he started.

Under the daily application of salicylic acid and oxide of zinc ointment, the irritation of the skin had subsided and the swelling disappeared.

On the 8th of April he served a mare twice inside of five minutes, the second time making a very close cover.

CONCLUSIONS.

1. It would be well to perform such an operation as the above under antiseptic precautions if possible.
2. The animal should have been placed in a warm, dry box.
3. Under the circumstances he should have been allowed to rise immediately the operation was finished.
4. He should have been allowed to lie down on the third day after the operation, at any rate.

ACUTE NEPHRITIS IN MULES.

By W. H. DALRYMPLE, M.R.C.V.S., Baton Rouge, La.

On the 8th of March we were requested by letter to visit one of the large sugar plantations along the Mississippi valley in this State to investigate what the owner termed a peculiar disease among his mules, five of them having died and eleven or twelve suffering.

Being somewhat suspicious of an outbreak of a contagious character, we proceeded at once to the place, and the following were the most prominent symptom presented by the sick animals: Lassitude, emaciation, staring coat, slow pulse, visible mucous membranes pale, extreme tenderness over the region of the kidneys, thirst, loss of appetite, frequent urination (was informed by the attendant that the urine passed by the mare mules, more particularly those most advanced in the disease, was observed to be tinged with blood); dragging gait

with hind limbs, as if the act of carrying the limbs forward produced pain.

We diagnosed acute nephritis and our suspicions rested on the food or water as the probable cause.

The water from a shallow well in close proximity to the sugar house and other buildings was suspected by the owner, and he afterwards watered the animals from the Mississippi river, which runs close past the plantation. We carefully examined the food in the stable (oats and peavine hay) which seemed of good sound quality. After numerous interrogations, however, as to feeding on damp or mouldy hay at any time within the last few months, we had presented to us by the stableman a sample of dark colored and gray mouldy peavine hay, and was informed that for two months previous they had been feeding it to the mules.

We had the opportunity of making a cursory autopsy on one of the mules that had died the night before our arrival. All the internal organs appeared healthy except the kidneys, to which our attention was more especially directed. Each gland weighed *about* six pounds (we could only procure weights sufficient to weigh three pounds at once, and each half of each kidney weighed *about* three pounds).

On opening we found a lightish yellow gelatinous fluid in the pelvis. The cortical portion presented streaks of congestion and numerous small abscesses containing pus, scattered over the cut surface.

We are of the opinion this disease originated probably as polyurea caused by the damaged hay and presumably assisted by the water, and that the exciting cause being kept up and the diseased condition allowed to go on unchecked, resulted in suppurative nephritis; at all events in the subject of our post-mortem examination.

The treatment prescribed for the twelve affected mules was

℞ Iodine, Grs. xx.
Potas. Iodid, 3i.
Aqua, oi.
Sig.—Twice daily.

Mashes of wheat-bran and boiled linseed. This was continued for about eight or ten days.

We had not an opportunity of paying a second visit, but from the last accounts (April 6th), the animals were much better and improving every day.

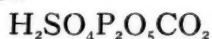
We append a partial analysis of both the water and hay which may be of interest.

WELL WATER.

Total Solid Matter, - - - 44.9 grs. per gal.

Organic and Volatile Matter, 14.05 " " "

Ca. Mg. Fe. (Trace.) K. Na. Cl.



PEAVINA HAY.

Fungus containing mineral matter, phosphates and sulphates of Ca., Na. and K.

A small portion of the hay in a sugar solution produced butyric fermentation.

A DOUBLE MONSTROSITY OF A CALF TRACEABLE TO INJURY OF ITS MOTHER.

By PROF. OLOF SCHWARZKOPF, V.M., University of Minnesota.*

Early in October, 1890, David Porter, in charge of the cattle barn of the Minnesota Agricultural Experiment Station, called me to see a Holstein-Friesian cow which was hit by the horns of another cow, a noted fighter, while passing into the stables. I found the cow very nervous and excited. On the right flank behind the last rib and about one foot below the loins was a small bruise, about as large as a fifty-cent piece. As the cow was with calf, I auscultated the uterus, but could find nothing abnormal. I instructed the man to keep the cow in a quiet place and to watch her, as she might possibly abort; however, she soon seemed all right, and nothing further was thought of the case.

On January 28th, 1891, the cow dropped a calf. As it did not have any passages within two days, the cattle-man gave

* From Bulletin No. 19 Experimental Station of University of Minnesota.

it a dose of castor oil, which had no effect. He then reported it to me, and also stated that the calf seemed to be crippled. In looking at the calf I observed that it had a curved spine, and further examination revealed that there was no rectal opening.

I had the calf sent over to the veterinary hospital, and on February 2, 1891, examined it. An incision was made where the natural opening should be, but after perforating the skin no rectum was found, but a direct entrance into the abdomen. The intestines that lodged in the pelvic cavity apparently were the colon or cœcum. I tried hard to find the rectum, but did not succeed. On February 3d the calf, which was greatly emaciated, died. The post-mortem examination showed the following:

On opening the abdomen an irregular situs of the intestines was first to be noticed. In removing the intestines I found the rectum near the liver, ending in a blind sack, curved and possessing a kind of nodule, resembling somewhat a cicatrix. After the removal of the intestines the curve of the spine to the left was very apparent, and the left kidney was very small and situated on top of the right kidney. The other organs were normal. The calf certainly could not have lived.

The practical conclusion that must be drawn from this case is that the abnormalities which the calf presented were produced by external injuries. Critics may object and say that the skin and the membranes of the uterus are so thick that a cow's horn cannot touch the foetus. This may be true as a rule, but by any one that had examined this case, together with its history, no other conclusion could be reached than to ascribe the cause of the abnormalities of the calf to the blow which its mother received four months previous to the birth.

I am not at all blindly devoted to dehorning cattle; on the contrary, being a lover of pure types and natural forms, I have always maintained that it is a violation of the laws of ethics and æsthetics to disfigure a beautiful Jersey cow by dehorning. But the principles of ethics are often violated in

the cow-stable and barn-yard, and I confess that I am also convinced that it is a righteous and humane act to take horns off—at least of those cows that cannot keep peace with their fellow creatures.

EXTRACTS FROM GERMAN PAPERS.

BY RICHARD MIDDLETON, D.V.S., Philadelphia, Pa.

COLIC INDUCED BY TORSION OF THE COLON.

Jelkman first communicated the possibility of diagnosing and treating a colic induced by torsion of the colon. Prof. Moeller has also lately proven the same to be practicable, and narrates his experience in two cases herewith appended.

He destroyed horses and maintained them in the upright position; he then removed that portion of the left abdominal wall embraced between the last rib, external angle of the ileum, and the transverse processes of the lumbar vertebræ. Pursuing such a method enables one to observe the movements of the hand in the rectum, and makes it possible to assert unquestionably with what part it comes in contact. The position in which the longitudinal muscular bands of the lower bowel are thrown, is remarkable, and furnishes a means of determining the direction of the torsion.

The method of correction of such a torsion is as follows: Carry the hand forward in the rectum and well to the left; circumscribe the colon and bring it toward the median line, at once and carefully moving the hand toward the spine. Following this last motion the intestine falls back in its normal position and the aggravated symptoms cease.

Moeller communicates two cases which came under his personal attention. In one of these he distinguished from the rectum the longitudinal muscular bands of the colon, to the left of the median line, leading from the postero-external portion of the body in an antero-internal direction. He followed the course prescribed above, pressing the colon backward and to the right; immediately the gas which had been imprisoned in the pelvic flexure escaped and the colic subsided.

In the second case the colic had lasted twenty hours; the pelvic flexure was filled with gas and easily reachable per rectum. The longitudinal bands were diagnosed as in the previous case. By great exertion it was possible to propel this portion of the bowel toward the mesial line, whereupon the threatening symptoms ceased.

Malkums also communicates a case in which this method proved very beneficial. The distended condition of the bladder and the contracted state of the rectum rendered it imperative to catheterize the former and irrigate the latter. Cold water clysters effect a neutralization of these annular contractions much better than warm.

Möeller further states that much patience is necessary, and considers all exercise, either walking or faster, as dangerous. —*Monatshft. f. Thier.*

POST PARTUM HEMORRHAGE.

We were called by Mr. A——to see a young heifer that had just calved. The history related indicated that the act of parturition had consumed little time, and had been completed by the aid of a few men. It was difficult to deliver the head of the calf, and immediately subsequent to this performance an immense quantity of blood escaped the vulvular opening. Upon our arrival we found a small pool of blood behind the animal. She appeared to be exhausted and evacuated at each contraction a stream of blood two inches in diameter. Manual examination revealed a wound of considerable size, which embraced the vagina and superior commissure of the vulva. The hemorrhage ceased in five minutes after the injection of liq. ferri sesquichloride solution, which we made up from medicines which we happened to have with us.

R Liq. Ferri Sesquichlor., ʒi,
Aquaë, cjs.
M.

Sig. —Make one injection.

After ridding the uterine cavity of collected blood by irrigating with water containing alum, we cauterized the wounds with a 10 per cent. carbolic solution (suturing being out of the question).

After partaking of bran water and moistened bread sprinkled with salt, the patient became tranquil. Five hours after our departure the membranes were ejected in a physiological manner, but nothing extraordinary or malformed could be detected. Pieces of ice were introduced within the vaginal cavity as an adjunct to the carbolic solution in preventing inflammatory complications.

The after-pains which usually are induced by wounds of this nature were almost if not quite wanting. On the second day the animal's condition was satisfactory, though pyrexia and anorexia were present in an insignificant degree and were no doubt referable to the pain.

After a fresh application of the carbolic solution, we used a prescription recommended by Wredens, and to whose efficiency we owe so much success in the treatment of fluor albus (leucorrhœa). This is very simple and consists of the following ingredients:

R Acidi Salicylici, 3 v,
Alcoholis, 3 vi.
M.

Sig.—Externally. Two tablespoonfuls of water as an injection, t. i. d.

This same author recommends for the same disease one tablespoonful of alum in one quart of water, to be used at one injection.

For the purpose of injecting these fluids we attached a large funnel to the end of a long flexible catheter.

Throughout ten days this procedure was continued, and after that, dilute creoline solutions were made twice daily. We believe the salicylic acid to have been much better borne than the creoline; but whether this was due to less pain induced, we leave our readers to judge.

The thin scab of the cauterized surface was gradually

desqu
discha

To
Liepzi
mercia
"T

being
gle co
water
contain
case if
in fatty
the sam

"T
tion of
in milk

"T
maligna
product
the con
greatly
Comple
trifugal
be prese
subsequ
cleanlin
aided if
lution (a
sterilize
it is very
charge o
"Tha
sterilize
tended fo

desquamated, and in about three weeks the case was discharged.—*Berl. Thier. Woch.*

COMMERCIAL MANIPULATION OF MILK.

To the Society for the Protection of the Public Health, in Liepzig, Prof. Soxleth contributed an article upon the commercial manipulation of milk, which in substance is as follows:

"The milk of the whole dairy should be mixed before being sold; and above all, never should the product of a single cow be used as nourishment for a child. The addition of water does not alter the quality of the nutritive principle contained in the lactic product. This is, however, not the case if the cream be removed therefrom. Pure milk deficient in fatty substance is not similar to skimmed milk containing the same percentum of setaceous matter.

"The dietetic worth of the milk is influenced by the addition of impurities, *i. e.*, adulterations, as is frequently observed in milk dispensed to the public at the present day.

"The bacteria generated in the polluted milk may operate malignantly upon the digestive apparatus; and through their product or exhalation may induce conditions deleterious to the constitution. The character of the milk as a food is greatly affected by the presence of these micro-organisms. Complete purity of the milk cannot be expected. By centrifugal force the impurities may be removed, and the milk be preserved longer, if the cooling be undertaken immediately subsequent to the milking. By means of sterilization and cleanliness, decomposition is retarded, and very materially aided if chilled and centrifugated milk be used. Strong pollution (adulteration) makes sterilization impossible. Only sterilized milk should be given to children at the breast, and it is very evident that this operation may not be left in the charge of strangers.

"That the milk should be fresh daily and that it should be sterilized is of fundamental importance, when the same is intended for sick or for children."—*Th. Wocherschrift.*

EXTRACTS FROM ENGLISH JOURNALS.

A PERINEAL TUMOR.

BY T. HIBBARD, M.R.C.V.S.

On Thursday the 14th inst., a skye terrier bitch was brought to me suffering from constipation, and with a hard swelling in the perineal region. On examination per rectum and per vaginam I found two tumors situated between the rectum and the vagina, embedded in the connective tissue and apparently having no adhesion to either of the important structures in such close proximity. I explained the nature of the obstruction to my client and he decided to let me operate.

On the 15th I chloroformed the animal, and made an incision in the superior commissure of the vulva. I then inserted my finger and thumb and removed four tumors, varying from the size of a marble to that of a duck's egg; and together weighing four and three-fourth ounces. They were attached to the connective tissue and appeared to be fibromas.

The bitch remained in my charge until Tuesday 19th, and got better, although she refused all food except a small quantity of milk. The owner upon my advice moved her, and after about three or four days she began to feed better. I saw her to-day (26th) and am pleased to say she is getting well rapidly, the wound being perfectly healthy and the bitch quite lively, no further visits being necessary.—*Veterinary Review*.

DISINTEGRATION AND ABSORPTION OF MEDICINAL AGENTS.

BY JOSEPH H. MANTON, M.R.C.V.S.

I fancy the incident I now record will not be devoid of interest to your readers—the circumstance of two medicinal balls being found, in an unchanged state, nearly twelve hours after being administered. I attended the following case in the practice of Mr. Roalfe Cox. About 8 P. M. a dray horse was discovered in abdominal pain, when the foreman horse-keeper gave, in accordance with his usual custom,

two balls, each containing ammon. carb. 3ii. About midnight the horse, getting worse, was first attended by me, the pain very severe—sitting on haunches. On my examining per rectum, I found the bowel so tightly contracted that I could not introduce my hand more than six or eight inches. He died about 7 A. M., eleven hours from the time of swallowing the two balls.

The post-mortem showed part of the third portion of the colon highly discolored, as occurs in strangulation, but I did not discover a lesion occasioning it. The stomach was so greatly distended by food as to remind one at first sight of the rumen of an ox; and amongst the ingesta of the stomach were the two balls unbroken and still affording the smell of ammonia.—*Ibid.*

RUPTURE OF THE BLADDER IN A COW.

By Jos. KIRK, M.R.C.V.S., Stewarton, N. B.

On January 20th I was called on by a workman from a farm about three miles distant to go and see a cow that required cleansing, "and that she was down, lifting and groaning badly." The owner, who is also a cattle dealer, was in Arran at the time and I obtained the following history from his wife:

The cow was bought a month before and was due to calve at the end of February; thus parturition took place fully a month beforehand; the calf was born dead but labor was easy. She seemed all right, and was milking well till the third day after calving, when she lay down, ate nothing, lifting at the flank with frequent moans. On examination I found her to be a three-year-old quey, first calf, and in fair condition; pulse quiet and weak, temperature 90° F.; about two feet of cleansing hanging from the vagina; labored breathing with frequent moans, eyes dull and sunken, turning her head towards the flank, trembling of all the body at intervals; had passed no urine for a day or two. On attempting to raise her she was not fit to stand upon her feet and fell. I removed the placenta and syringed the uterine cavity with a warm diluted solution of Jeyes' fluid, passed the catheter but obtained no

urine, administered stimulants combined with tinct aconite but with no result. As I had a visit to make about a mile further on I promised to call on my way back. On my arrival I found she had just died. On making a post-mortem all parts of the body in a healthy condition except the bladder, which had a longitudinal rupture of the inferior surface of the fundus about two or three inches in length, involving all the coats; there was a quantity of urine floating in the abdominal cavity. Uterus quite healthy and contained some of the injection I had used.—*Ibid.*

HYDRASTIS IN THE TREATMENT OF NASAL GLEET.

By CAPT. F. SMITH, Professor in the Army Veterinary School, Aldershot.

The value of hydratis canadensis in the treatment of nasal gleet was not overated by Messrs. Edgar and Hurndall. It may be within the recollection of your readers that the members of the Southern Counties V.M.A. were recommended by the former gentlemen to try the drug, and I at once, through the kindness of Prof. Edgar, employed it in the treatment of a case of ozæna.

The horse had been previously trephined, the maxillary sinus being opened in two places, one on the zygoma close to the eye, the other in the usual position; the head was syringed out with a mixture of hydratis 1 to 6 of water twice a day, and ten drops of the tincture given with the drinking water. At first the discharge was so much increased that I should have stopped the use of the remedy but for the timely warning of Mr. Hurndall, who told me that this effect would be produced; for the first month there was not much improvement, but after this the case daily grew better, the discharge ceased, and I allowed the wounds in the head to close; the horse was discharged to duty in six weeks.—*Ibid.*

A QUINTUPLE CONCEPTION.

By THOS. HORTON, M.R.C.V.S.

A rather extraordinary case occurred in my practice about ten days ago. I was called to see a cow which was down

and could not rise. I found her weak and emaciated (she had been poorly fed) but not showing any signs of acute disease. When got on to her feet she was not at all distressed, and ate and drank well. I gave tonics and good food, but she gradually got worse and we could not get her up at all, and the owner decided to have her killed, which was done. On opening her it was found that the uterus contained five calves, all well developed and in a natural condition, considering the cow had about ten weeks to go. The color of each was easily distinguishable, they were very level in size, and each about as big as a small collie dog. I do not remember ever hearing of a case where there were so many as five calves at one time in a cow. They looked so very healthy that I believe they might have been brought forth in a natural manner if the cow had been sufficiently well cared for during the winter.—*Ibid.*

DRY CHOKING.

By J. McGAVIN, M.R.C.V.S.

I was called to an aged draught horse which had been brought from the field that day, and had received a feed of oats and chaff. He was a greedy feeder, and his molars were faulty. He stopped eating when half through his feed, saliva flowed from his mouth, he made unsuccessful attempts to swallow, also to vomit, and in doing so gave a half shriek or squeal. Tympanitis set in, and he seemed much distressed; the œsophagus was swollen on the left side, and I diagnosed the case to be dry choking.

As my experience was limited in such cases, and this being the worst I ever had, I taxed all my resources to reduce the obstruction. I rubbed the œsophagus gently and tried to manipulate the mass. Then tried to drench him with emulsions, &c., and after several attempts at drenching he became violent and quite unmanageable. As the horse was close at hand I watched the case for several hours, gave medicated enemas, and relieved the tympany, and after five hours unsuccessful treatment I tried the following: I inserted the needle of my intratracheal syringe into the center of the

obstruction and injected cold water into the œsophagus. In the course of half an hour the mass had softened and disappeared, and the horse has continued well ever since.

As I have not heard of any such treatment, perhaps it may be useful to some fellow practitioner who may some day have such another case.—*Ibid.*

EXTRACTS FROM FRENCH JOURNALS.

A NEW TREATMENT FOR CANKER OF THE FOOT.

By M. LUCET.

After having treated one case of this form of disease in a horse affected in both hind feet, and having unsuccessfully employed every form of treatment hitherto recommended, the author devised a final course of operation. On the right foot, the one most affected, the hoof—which was entirely undermined—was removed and the granulation excised as completely as possible, after which a very compressive dressing with an aqueous emulsion of cresyl (one part in three) was carefully applied. After two weeks the dressing was removed, and underneath was found a thick layer of healthy horn. After some time the same course was taken with the other foot and the same result was obtained.

While the author attributes to the cresyl the results secured, is it not probably that the radical operation contributed considerably to the good results?—*Revue de Med. Vet.*

FRACTURE OF THE INFERIOR MAXILLARY.—PURULENT INFECTION.

By Mr. DEBRADÉ.

Resulting from a kick received below the temporo-maxillary joint, a mare presented in that region a fistulous tract of the left cheek. The muscles of that side were atrophied, mastication was almost impossible, a discharge of pus and blood escaped from the fistula, which on being probed gave the crepitating evidence of a comminutive fracture of the left branch of the lower maxillary bone immediately below the condyle,

and also of the coronoid process. The fistula was freely opened, the fragments removed, the wound washed with carbolyzed water, and a dressing of carbolyzed glycerine applied over the parts. At first everything seemed to go on well and the wound appeared to be progressing favorably toward cicatrization. After a few days, however, alarming symptoms manifested themselves. Fever set in and rapidly increased, the digestive functions were disturbed, respiration was accelerated, breath became offensive, secretions of the wound bloody, and notwithstanding a severe derivative treatment the mare died.

At the post-mortem the condition of the fracture was confirmed. All the internal organs presented interesting lesions. Inoculations to guinea pigs of blood taken immediately after death being followed by negative results proved that the cause of death of the mare was purulent infection and not septicæmia.—*Ibid.*

A NEW CASE OF UNILATERAL PLEURISY IN A MARE.

BY MR. MINETTE.

The subject was a mare which presented all the characteristic signs of pleurisy on the right side only, with effusion in the lower third of the corresponding pleural sac, viz., absence of the respiratory murmur, bronchial breathing on a level with the lower third of the right lung, dullness on percussion, clicking noise in the right nostril, dyspnœ, convulsive dilatation of the nostrils, short and painful cough, pulse small, intermittent, etc. Graduated counter-irritation was resorted to, with heroic diuretic internal medication. The case was followed by radical recovery in a few days.—*Ibid.*

BIBLIOGRAPHY.

THE DOG. BY PROFESSOR WESLEY MILLS, M.A., M.D., D.V.S. New York: D. Appleton & Co.

"The Dog, in Health and Disease," is a new addition to our American veterinary literature. It is contributed by Professor W. Mills, of McGill University, a gentleman al-

ready well known by his literary performances, and principally by his work on "Comparative Physiology," which has become a text book in most if not all of our veterinary colleges.

If, however, "Comparative Physiology" has succeeded in winning a success with the students of veterinary medicine, we fear that "The Dog, in Health and Disease," will require a longer time to secure an equal result. This is not because of any inferiority on the part of the book itself, but because it fails to include certain matters which investigators and students in canine pathology would naturally expect to find in a new work which is destined to compete with those of Youatt, Hill, Steele and others, already and so long in vogue.

The author, however, warns us in his Preface that "the book is by no means intended for students and practitioners of veterinary science *alone*. It is meant for all intelligent persons who breed and keep the animal." This deprecatory caution naturally relieves us from the task of further criticism on the Second Part, which forms nearly the latter half of the book.

The First Part is very interesting reading. It is constituted of a series of chapters which, starting with the origin and history of the dog, passes through his zoological position and physical characteristics and ends with a classification of those interesting animals through all their various breeds and in their various species. This is followed by a goodly number of pages treating in an able and entertaining manner upon the general canine hygiene and the requirements of dogs in breeding, and a very concise article on the determination of the age of the animal.

The text is handsomely illustrated by nearly forty well executed plates. The publishers' part of the work has been liberally planned and executed, and harmonizes well with the general design of the whole. The volume is nicely bound and handsomely finished, and should be certain of finding a deserving place in every select library.

BACTERIOLOGICAL DIAGNOSIS. BY JAMES EISENBERG, Ph D., M.D., Vienna. Translated by N. H. Pierce, M.D., Chicago, Ill. Philadelphia: F. A. Davis Co.

Every medical student, whether beginner or in an advanced class, or graduate, old or young, whose determination it is to keep posted in his studies with the progress made during the past few years in bacteriology, must have read a great deal upon that subject, and at the same time must have regretted that lack of time has prevented him from mastering all that has been written and published, or found himself unable to apply to practical use all that he may have learned. The science of bacteriology is so complicated; the demonstrative work sometimes so difficult to execute; the possession of a laboratory, however small, so expensive, and the printed and published matter pertaining to biological and allied subjects so voluminous, and the related diseases so diverse and so numerous, and indeed the whole subject so large, that it cannot be considered surprising that, after all, the domain of bacteriology has remained unvisited by so many and thoroughly explored by so few, and that it has had so few really enthusiastic and hard-working explorers.

But this condition of things may be considered as measurably, at least, abolished. "Bacteriological Diagnosis," with its 137 tables, and the Appendix which follows them, on the technique employed in the cultivation and staining of bacteria, has relieved the subject of many of its difficulties, condensing as it does in illustrative plates, and in a few lines and even a few words, the characters which belong to the non-pathogenic and pathogenic bacteria, and to the fungi. Each table gives for each individual the place where it is found, with its form and arrangement, motility, mode and rapidity of growth, of temperature required, spore formation, ærobiosis, gas production, gelatine reaction, color production, and pathogenesis; representing, in fact, almost at a glance, every interesting point in the life and power of the bacteria, so that it may be found and confirmed by a little attention and application.

The book may have been written principally for medical

men, but there are many in the veterinarian ranks who, we feel certain, will find in the reading of "Bacteriological Diagnosis" many points of interest and instruction, as well as of practical utility.

We urgently recommend the work to our brethren for their study and appreciation.

PRAPARIERMETHODIK. BY DR. RUDOLF LOTHES, Berlin. Berlin: Richard Schoetz.

This is an excellent little anatomical guide, prepared by Dr. R. Lothes, Demonstrator to the Veterinary School of Berlin, giving directions in the various steps to be followed in the dissection of the equine cadaver.

The preparation of the muscles, joints, viscera, arteries and nerves are concisely and clearly presented to the reader—the nervous and circulatory systems being illustrated by shematic plates, which render the subject more readily comprehensible to the student than long verbal descriptions.

We have no work like this in any other language, and it is to be hoped that some of our friends familiar with the German language will translate "Prapariermethodik" in such form as to make it a classical book for our students—adapting it, however, to the text followed in our English works on equine anatomy.

COLLEGE COMMENCEMENTS.

MCGILL UNIVERSITY VETERINARY DEPARTMENT.

The Wm. Molson Hall, McGill University, was the scene of a most interesting and brilliant gathering. The occasion was the annual convocation of the Faculty of Comparative Medicine. A large number of friends and relatives of the graduate sophomores and freshmen were in attendance, together with a large number of "undergrads," to do honor to the graduating class of 1892.

Punctually at 3 o'clock Mr. J. H. R. Molson took the chair and was supported by Vice-Chancellor Sir Wm. Dawson and Mr. W. C. McDonald.

Among others on the platform were the Dean, Dr. Duncan McEachran, Dr. C. McEachran, Dr. Bryden, Boston; Dr. Gadsden, Philadelphia; Dr. Craik, Professor Mills, J. Redpath Dongal, Rev. Geo. Cornish, LL.D.; S. Finlay, Professor McLeod, H. Watt and J. W. Brakenridge, B.C.L.

The proceedings opened with prayer conducted by Rev. Dr. Cornish.

The Dean of the Faculty, Dr. D. McEachran, read the twenty-sixth annual report of the Faculty, at the close of which the following prizes were handed to the successful students by the chairman:

Veterinary medicine and surgery, Joseph Plaskett. Anatomy, J. D. McIntyre. Diseases of cattle, J. D. McIntyre. Cynology, D. L. Bolger. Zoology, C. French. For the best general examination on all subjects, silver medal, J. D. McIntyre.

Extra prizes.—For the best essay read before the Veterinary Medical Association; 1st. D. L. Bolger, \$15; 2d. G. P. Wells, \$10; 3d. J. H. Seale, \$5. For the best essay read before the Society for the Study of Comparative Psychology, book, G. P. Wells. Scholarship, \$50—For the highest aggregate obtained in second year subjects, Wilfred Plaskett. Scholarship, \$50—For the highest aggregate obtained in first year subjects, C. French.

The degree of D.V.S. was conferred on the following students by Principal Sir Wm. Dawson, assisted by the Dean, Dr. D. McEachran: J. D. McIntyre, R. A. Ramsay, J. Plaskett, D. L. Bolger, George Lee, G. P. Wells, J. Moffatt, A. T. Robertson, D. McNaughton, G. Gangloff, R. E. Dyer, E. Robb, J. H. Seale, S. J. Moffatt, T. B. Pote, O. C. Lofgren.

The valedictory address on behalf of the graduates was then delivered by Dr. R. A. Ramsay, of Eden Mills, Ont., one of the new "Vets." The valedictory was remarkably well delivered and elicited well deserved applause from the large gathering.

Dr. C. McEachran, D.V.S., next delivered an address to the graduating class. Sir. Wm. Dawson followed with a few words of congratulation and encouragement. He hoped that

ere long fresh quarters would be assigned to this most important faculty, and expressed his good wishes for the success of the class of '92.

ONTARIO VETERINARY COLLEGE.

The last annual commencement exercises of the Ontario Veterinary College were held in the lecture theatre of the college on Temperance Street. The chair was taken by Dr. Andrew Smith, principal of the institution, among those supporting him being Hon. John Dryden, Minister of Agriculture; N. Awrey, M.P.P., President of the Agriculture and Arts Association; Dr. Daniel Clark, Hon. Thomas Ballantyne, Speaker of the Legislative Assembly; Rev. D. J. Macdonnell, Dr. Thorburn, Dr. McMahon, M.P.P., William Christie, Rev. Dr. Briggs, Henry Wade, Secretary of Agriculture and Art Association; Inspector J. L. Hughes, Ald Score, Mayor Lloyd, Newmarket and others.

In opening the proceedings Dr. Smith stated that this was the twenty-second anniversary of the institution, and the closing session had been one of the most successful in its history, during which students to the number of 350 had been present from all parts of Canada and the States, and even from the United Kingdom. He called upon the Secretary to read the prize list, which was as follows:

GRADUATES.

Richard Henry Alexander, Stathroy; James L. Armistage, Lucan; James M. Armstrong, Locust Hill; George Beacon, Clinton; Wm. J. Badgley, Collamer, N. Y.; Wm. H. Barry, Omagh; Howard L. Baum, Shelly, Pa.; Wm. G. Birdsall, Peterboro'; Charles N. Blanshard, Appleby; J. H. L. Blattenberg, Smithville, Ohio; Samuel D. Bodle, Mecklenburg, N. Y.; Farra L. Botkin, Union Port, Ind.; Alex. G. Bowker, Norfolk, Eng.; Robert L. Bradley, Louisville, Ky.; Fred. Bragington, Crown Point, Ind.; T. H. Buckingham, Elkhorn, Man.; Phillip G. Button, Crasco, Iowa; L. C. Brewster, Belleville; Asa A. Brown, Toronto; Fred. C. Brown, Rodney; Hosea B. Crandall, Syracuse, N. Y., Alva B. Car-

ter, E.
M. C.
Richa
rines
don, I
ren, C
Moh
iels, N
Gravi
bridge
Wing
Fisher
Ernest
Harry
ton; A
Reading
Griffith
S. Gr
Peter
liam J.
Milfor
J. Hell
braska
Cortlan
Wilfred
field, M
Rockw
Koland
Ohio;
ford, P
son, Lo
Gear, I
John F
Northfi
McCart
Mich.;
cago, Ill
McLeve

ter, Brocton, Ill.; William S. Cass, Raymond, Ill.; Edward M. Clarke, Bishop, Cal.; Nathaniel Clark, Mount Brydges; Richard Coghlan, Strathroy; Robert Colgan, St. Catharines; Horace H. Collins, Obold, Pa.; Samuel A. Coxe, Brandon, Man.; A. H. Crane, London; Samuel R. Craver, Warren, Ohio; David W. Curtis, Listowel; Ashton B. Cutcliffe, Mohawk; Harry R. Church, Luzerne, Pa.; Charles H. Daniels, North Adams, Mass.; L. Enos Day, Concordia, Kansas; Gravier G. Dean, Tully, N. Y.; David C. Detwiler, Ironbridge, Pa.; James S. Elliott, Gosport, N. Y.; John J. Elliott, Wingham; C. H. Erganbright, North Salem, Ind.; Peter M. Fisher, Georgetown; E. D. Fisher, Skaneateles, N. Y.; Ernest Foreman, Jr., Whitehall, Ill.; R. H. Fortune, Vesta; Harry Fulstow, Greenwich, Ohio; Leslie A. Gemmel, Islington; Andrew D. Gemmill, Wingham; Samuel Goldsmith, Reading, Pa.; James H. Gregory, Danville, Pa.; John W. Griffith, Pitpon, Iowa; George E. Grover, Chatham; John S. Grove, Nimisila, Ohio; Adolphus W. Guest, London; Peter F. Gaunt, Kinkora; Alfred T. Goldie, Corunna; William J. Hallock, Danby, N. Y.; William F. Harding, New Milford, Pa.; Leonard G. W. Hart, Eau Claire, Wis.; Henry J. Hellwig, Elliston, Ohio; James H. Hester, Hastings, Nebraska; Harry E. Hurd, Brockville; Benjamin F. Huston, Cortland, Neb.; Henry H. Hawley, Niagara Falls, N. Y.; Wilfred T. Hart, Ravenna, Ohio; Frank A. Ingram, Springfield, Mass.; Thomas W. Johnston, L'Amaroux; T. E. Jago, Rockwood; Frank C. Jarvis, Cambridgeboro, Pa.; John L. Kolander, Pewaukee, Wis.; William Kinney, Cedar Valley, Ohio; George Kesler, McKeesport, Pa.; E. G. Kriebel, Hereford, Pa.; C. W. Ruhn, Mercersburg, Pa.; Thomas J. Lawson, Logoch; William J. Lawson, Cherrywood; Louis D. Le Gear, Inlay City, Mich.; Michael Little, Pilot Mound, Man.; John H. Lipsett, Brandon, Man.; Kenneth J. McKenzie, Northfield, Minn.; Thomas McFarlane, Ottawa; Frank H. McCarthy, Pottsville, Pa.; Thomas W. McConnell, Moline, Mich.; Daniel McCuaig, Bristol, Que.; T. F. McEvers, Chicago, Ill.; Ashton D. McKenney, Watertown, S. Dak.; J. H. McLevey, Florence; Wallace McQueen, Simcoe; John E.

Miller, Greenville, Texas; George W. Milligan, Faribault, Minn.; Wm. Mock, Easton, Pa.; Harvey Campbell Moore, Deer Park; John O. Moore, Durham; Robert J. Morrison, Detroit, Mich.; Charles M. Noble, Monticello, Iowa.; E. H. Nodyne, Rochester, N. Y.; John H. O'Brien (M.D.), Rochester, Pa.; Geo. W. Orchard, Strathroy; Wm. H. Orth, Wallaceburg; David C. Papworth, Syracuse, N. Y.; Walter J. Payne, West Walworth, N. Y.; Wm. O. Penney, Louisville, Ky.; M. B. Perdue, Orangeville; James Pickel, St. Mary's; J. W. Poole, Crystal City, Man.; Robert Rives, Greenfield, Ill.; Thomas E. Robinson, Glastonbury, Conn.; Henry Roome, Croydon, England; Joseph Routledge, Lucan; Henry Alfred Rudd, Dublin, Ireland; Ellerton A. Richardson, Strathroy; Joseph S. Schofield, Naugatuck, Conn.; James L. Savage, Chesley; Joseph P. Sherman, Detroit, Mich.; Wm. A. Shoults, Portage la Prairie, Man.; Wm. H. Simmons, London, Eng.; Fulard C. Smock, Carlonville, Ill.; Samuel Somerville, Buffalo, N. Y.; Warren E. Stocking, Eagle Harbor, N. Y.; Frank W. Swearingen, Decatur, Ill.; James L. Smith, Strathroy; Thomas Tinder, Cork, Ireland; Richard W. Tuck, Elgin, Ill.; Joseph W. Turner, Uxbridge; John S. Thompson, Darlington, Wis.; J. N. Umphrey, Udora; James A. Wake, Moosomin, Assa.; Walter Warren, Windsor, Mo.; J. Will Watson, Peru, Ind.; Robert H. Watson, Chicago, Ill.; Benjamin F. Wingard, Bryan, Ohio; Thomas C. Wallace, Jamestown, N. Y.; Ben. P. Wende, Millgrove, N. Y.; Thomas C. Young, Bristol, Que.; William G. Zimmermann, Smithville, Ohio.

A large number of prizes were then delivered, which were followed by addresses from Hon. Thos. Ballantyne of the Legislative Assembly; the Minister of Agriculture; Mr. Avery, President of the Agriculture and Arts Association; and Drs. McMahon, Clark and several others.

OHIO VETERINARY COLLEGE.

One year ago yesterday was organized the Ohio Veterinary College, and last night the same institution graduated sixteen young men.

The exercises were held in the college rooms, 135 Sycamore Street, and were attended by many prominent horsemen and their families. For the first annual it was a pronounced success, and the Faculty look forward to the coming year with pleasurable anticipation. Dr. A. H. King, Dean, opened the meeting with a history of the organization, which was put upon a sound basis through the support, financial and otherwise, of Messrs. Frank Fox, Thomas Mead, W. W. Symmes and others interested in the welfare and comfort of the noblest of animals.

Thomas Downing delivered the valedictory address, and W. R. Howe, V.S., the Faculty address. Hon. W. W. Symmes, President, conferred diplomas on the following: J. H. Young, Belvidere, N. Y.; W. E. Sage, Churchville, N. Y.; D. B. Cliff, Upper Sandusky, O.; P. O. O'Rear, North Sabin, Ind.; A. L. Kimbro, Centerville, Ky.; John Dorn, Pittsburg, Pa.; G. W. Cliff, Upper Sandusky, O.; Thomas Downing, Washington, Ia.; H. Emery, Clarion, Pa.; Chas. Phillips, Maquoketa, Ia.; Emil Pohl, Buffalo, N. Y.; H. C. Ayers, Williamsville, N. Y.; E. E. Terry, Ashtabula, O.; D. P. Webster, Brookport, N. Y.; S. A. Coppess, Ansonia, O.; John S. Bransen, Indianapolis, Ind. A. L. Kimbro received a gold medal for best general average.—*Cincinnati Commercial Gazette*.

SOCIETY MEETINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

The Pennsylvania State Veterinary Medical Association convened at 10 A. M., March 8th, 1892, in the hall of the College of Physicians and Surgeons, Philadelphia; President Kooker in the chair.

On roll call the following members answered to their names:

Drs. Kooker, Lusson, Hart, Harger, Zuill, Webster, Hoskins, Jas. B. Rayner, Thos. B. Rayner, Geo. B. Rayner, John B. Raynor, Keil, George, Gladfelter, Glass, Foelker, Knight, Custer, J. Curtis Michener, Robert Formad, Good, Heller,

Collins, Rectenwald, Meyer, Ross, John J. Smith, Werntz, Francis Ridge, Kuhn, Diemer, Magill, Williams, Schrieber, Ridge, Heelor, Bachman.

As delegates: Dr. A. T. Sellers, of the Keystone Veterinary Medical Association; Dr. W. H. Ridge, of the Philadelphia Veterinary Society; Dr. W. B. E. Miller, of the Veterinary Medical Association of New Jersey.

As visitors and applicants for membership: Dr. John Marshall, Dean of the Department of Veterinary Medicine of the University of Pennsylvania; Dr. William Dougherty, of Baltimore, Md.; Dr. E. O. Shakespeare, Philadelphia; Drs. J. H. Oyler, B. F. Senseman, H. Walters, Harry Entmen, Leonard Pearson, W. T. Edwards, Lewis I. Bloom, J. C. Bartholomew, A. R. May, Wm. Tagg. Mr. Teufel, of Philadelphia, veterinary instrument maker, was also present.

The minutes of the semi-annual meeting followed, and were adopted as read.

Election of officers followed, and resulted in the following choice:

President—W. Horace Hoskins, Philadelphia.

First Vice-President—Thos. B. Raynor, Philadelphia.

Second Vice-President—R. G. Webster, Media.

Third Vice-President—Z. S. Keil, Perkasio.

Recording Secretary—Robt. Gladfelner, Philadelphia.

Corresponding Secretary—W. H. Ridge, Trevese.

Treasurer—John R. Hart, Philadelphia.

Board of Trustees—W. S. Kooker, W. L. Zuill, S. J. J. Harger, Jas. B. Rayner, J. Curtis Michener.

Professor R. S. Huidekoper, of New York, was elected an honorary member, having removed from his native State.

The following names being favorably recommended by the Board of Trustees, were duly elected to regular membership:

Dr. Wm. Tagg, Vet. Dept. of U. of Pa., Philadelphia, Pa.

" B. F. Senseman, Vet. Dept. of U. of Pa., " "

" Leonard Pearson, Vet. Dept. of U. of Pa., " "

" W. T. Edwards, Vet. Dept. of U. of Pa., Clearfield, "

" J. C. Bartholomew, Vet. Dept. of U. of Pa., Phila., "

" J. H. Oyler, Ontario Vet. College, Harrisburg, "

Dr. Lewis I. Bloom, of Curmusville, Pa., was unfavorably reported, failing to pass a satisfactory examination.

The charges pending against Dr. G. Meyer, of Allegheny, Pa., were laid over until the September meeting.

Under reports of committees, Dr. W. Horace Hoskins, as Chairman of Legislative Committee, made a brief report on the prosecutions being made in Allegheny County.

Dr. W. L. Zuill, Chairman of the Committee on Sanitary Science and Police, made an unusually complete and exceedingly interesting compilation, covering the entire ground of that committee's field.

Notice was given by Secretary Hoskins of the next meeting of the United States Veterinary Medical Association at Boston and the international meeting at Chicago, 1893, and a cordial invitation was extended to all.

At this period of the session a recess was taken, that the entire body present might accept the hospitality of the Department of Veterinary Medicine of the University of Pennsylvania at a bounteous lunch served at Boothby's. The spread was one of very generous proportions, and was most thoroughly appreciated by all present and brought forth a hearty vote of thanks to the Department.

The following members' names were dropped from the rolls for non-payment of initiation fees and dues: Drs. L. E. Wheat, A. Maurise, W. M. Brodhead, C. E. Bridge.

It was decided, after some discussion, that the next annual meeting shall be of at least two days' duration.

Letters of regret were received from Drs. D. E. Salmon, A. Liautard, Claude Morris, B. F. King, H. B. McDowell, E. A. Grange, and members Turner, Timberman, Hoffman and Magee.

A communication from E. S. Bausticker was read.

Papers being now in order, a paper on Laryngotomy, by Dr. S. J. J. Harger, was read and illustrated by an exhibition of all the necessary instruments for its performance, and by a large number of fresh specimens showing the different steps of the operation. It proved to be one of the most thoroughly scientific papers read before the Association, and re-

flected much credit upon the essayist, who had several complete recoveries of hopeless roarers through the operation described. It was thoroughly discussed by many of the members, and a thousand copies were ordered printed. A generous offer was then made by Mr. Teufel, and accepted with thanks, of a series of cuts to illustrate more clearly the operation and to enhance the usefulness of the paper.

A report on the so-called uterine stones reported at the semi-annual meeting was made by Drs. Ridge and Formad. Their examination revealed the fact that they were not concretions formed within the bodies of the animals from which they were taken, but were ordinary stones and had been placed in the uterine cavity for some deceptive purpose.

In the absence of Dr. Waugh his paper on "The Veterinarian—Intellectually, Socially and Morally," was read by Dr. Alex. Glass. It proved a very interesting paper, and plead forcibly for the higher and broader education of the future members of our profession in the colleges.

The Treasurer's report exhibited a balance of some forty-eight dollars, and the payment of a large amount of initiation fees and dues enabled the Association to draw orders for every outstanding bill against it.

The new officers were then seated, retiring President Kooker introducing the new President in a very complimentary manner. Some remarks on accepting the office of President were made, after which the meeting decided to hold their semi-annual gathering at Allentown in September next.

A motion for adjournment then prevailed.

N. N. S.

WESTERN IOWA VETERINARY MEDICAL ASSOCIATION.

The fifth meeting of the Western Iowa Veterinary Medical Association was held in the parlor of Burk's Hotel, Carroll, Ia., on Wednesday evening, March 23, 1892, pursuant to the call of the Secretary, and was called to order by President G. I. Gibson, after which, in a few well chosen remarks, the President thanked the Association for the honor conferred upon him at the last meeting during his absence, also

expressing his gratification upon the growth of the Association.

Upon roll-call the following members were present: President G. I. Gibson, Vice-President G. C. Williams, Secretary L. U. Shipley, Professor W. B. Niles, of Ames, S. H. Johnston, G. A. Johnson and Dr. Heck, of Harlan, as a visitor.

The minutes of the previous meeting was read by the Secretary and approved; also letters of regrets for non-attendance from Dr. R. R. Hammond and others.

Under the head of new business it was moved by G. A. Johnson and seconded by S. H. Johnston that the Secretary be instructed to correspond with the Secretary of the North-eastern Iowa Association upon the idea of holding a joint meeting of the two Associations at Ames, Ia., some time during the summer. The motion was carried.

Dr. Gibson then suggested that the Association take some action looking to the bettering the standard of breeding stock in Iowa, and the Doctor further suggested that members of the Association and all veterinarians might promote the cause by writing articles for their local papers and the stock journals.

It was then moved and seconded that the Association recommend a law bearing upon this subject. This motion brought out a spirited discussion and considerable difference of opinion as to the advisability of such a step.

Professor Niles then presented some notes on experiments upon the use of pilocarpine, also on the different disinfectants in general use as applied to wounds, which elicited an interesting discussion.

It was then moved and seconded that the President declare Dr. W. H. Heck a member of the Association, which he did, expressing his pleasure in so doing.

Dr. G. A. Johnson then presented a paper on "Difficult Parturition and the After-Treatment," which was followed by an interesting discussion.

The meeting then adjourned to meet at the call of the Secretary.

L. U. SHIPLEY, *Secretary*.

KANSAS STATE VETERINARY MEDICAL ASSOCIATION.

The semi-annual meeting of the Kansas Veterinary Medical Association was held in Manhattan on March 10th and 11th, 1892.

The meeting was called to order by Vice-President Hunter. The following members were present :

Drs. Hunter, Cook, Brady, Orr and Mayo.

The following members were elected: Drs. Nott, Welch, McCassy, Eisenhoner and Wattles.

Upon invitation the Association visited the State Agricultural College, and were much pleased with the work being done there.

In the evening Dr. Hunter read a paper entitled "What Is It?" describing a peculiar case of malignant tumor in the pharynx of a troop horse. The paper was very interesting, and gave rise to considerable discussion.

Dr. Mayo followed with a report of an outbreak of "mad itch," or "hydrophobia," so called, in cattle. The discussion which followed drifted to the interesting subject of "stalk disease" in cattle.

The other essayists being absent, a question box was introduced, which proved very interesting, every one present taking part in the discussion of questions presented.

According to previous notice section 4 of the Code of Ethics was stricken out.

A committee, consisting of Drs. Welch, Orr and Mayo, was appointed to draw up a fee bill for the use of the Association and present it at the next meeting.

The following resolution was adopted :

Resolved, That the Kansas Veterinary Medical Association condemns the method of meat inspection as practiced by the Bureau of Animal Industry at Kansas City, where only one graduate of a veterinary college is employed. Fitness for the position, and not political influence, should be the qualification for appointment. We consider the method now in vogue at Kansas City as detrimental to the veterinary profession and inimical to the proper inspection of meat.

A vote of thanks was extended to the resident veterinar-

ians for their hospitality, and the Association adjourned to meet in Topeka on the Thursday of State Fair week.

N. S. MAYO, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

Through the kindness of Dr. W. H. Cooper, V.S., Secretary, we have received notice that the eighth annual meeting of this Association was held on the 14th of April at the State Street House, in Trenton, N. J.

CORRESPONDENCE.

MOUNT STERLING, KY., April 14th, 1892.

Prof. A. Liantard, M.D., V.S.:

DEAR SIR: If you think the case I mention here worthy of notice, will you please report it in the REVIEW?

The patient was a three-year-old colt. The history was this: Last fall a slight enlargement was noticed at inferior third of neck, just at the commencement of thorax.

The colt had run at grass ever since, until April 12th, when it got in the stable and ate some corn and fodder.

On April 13th the owner came for me, saying that he thought the colt was choked with a corn cob. When I arrived I found a large swelling at inferior third of neck which felt like a soft tumor. The trachea was displaced very much to the left. Great difficulty in breathing, discharge of food from nostrils, also attempts at vomiting, and food would be sometimes ejected in this matter.

I cast the colt and dissected down on the swelling, which I found to resemble a distended bladder, and found the trouble to be a rupture of the muscular coat of œsophagus. The rupture was about three inches in length, and had evidently taken place some time previously. As I found this condition I destroyed the colt and took out the œsophagus at that part, and found the mucous membrane inflamed. I think the rupture must have taken place last fall, when the swelling was first noticed, but owing to the grass diet which the colt had received, no serious trouble resulted, until he ate corn and fodder. The œsophagus at that portion where the rupture existed, was packed with corn and other food.

Trusting that you are enjoying good health,
I remain, yours very truly, FRANK HARVEY.

SUNDRIES.

KENDALL'S SPAVIN CURE.—The following formula is the result of an analysis made in our laboratory and makes a preparation not to be distinguished from the original. Kendall's Spavin Cure is put up in a twelve-sided amber bottle, which contains 5½ oz. of clear brownish-red liquid. It contains camphor and a heavy petroleum oil, turpentine, alcohol, free iodine and oil of rosemary in the following quantities: Turpentine, 1 fl. oz., alcohol, 2 fl. oz., camphor, 240 grains, iodine, 25 grains, petroleum oil (heavy) ½ fl. dr., oil of rosemary, 1 fl. dr. In the mixed fluids (without filtering) dissolve the camphor and the iodine.—*New Era*.

A SPECIFIC FOR TETANUS DISCOVERED.—Dr. R. Schwartz, of Padua, announces the successful treatment of tetanus by means of injections of the tetanus antitoxin of Tizzoni and Caltani. These experimenters succeeded in producing immunity against tetanus even in animals susceptible in a high degree, and have shown that the blood-serum exerts an antitoxic action, and is capable of producing immunity against and cure of the disease. They succeeded in obtaining this tetanus antitoxin in a solid state by the addition of alcohol to the serum, and by drying the precipitate *in vacuo*. As the disease in man is of longer duration and less certainly fatal than in many animals, there seemed to be good reason to hope that the tetanus antitoxin might be of great value. Gagliardi, of Molinella, treated a severe case by hypodermic injection of one gramme. All symptoms of tetanus disappeared and complete recovery ensued. Schwartz relates at length the case of a peasant boy, aged fifteen treated, by him.—*Medic. Rec.*

FOR SALE.

Good practice in city of forty-five thousand (45,000), with country practice. No other graduate within one hundred and ten (110) miles. Mild Winter and cool Summer.

J. POE, V.S., Knoxville, Tenn.